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An Address
ON
SOME THOUGHTS ON CAUSATION IN HEALTH AND DISEASE.

Delivered at the Opening Ceremony of the Faculty of Medicine in the University of Leeds on Oct. 1st, 1909,

BY THE RIGHT HON. LORD JUSTICE FLETCHER MOULTON, P.C., F.R.S.

LADIES AND GENTLEMEN,—I am fully sensible of the honour which your faculty has done to me in asking me to give the address to you at the commencement of your university session. But the honour has its difficulties. I know well the value of special study in any branch of science and how presumptuous it is for those who have not trodden that toilsome path to venture to speak before those who have. But this must have been equally well known to those who chose me for the task, and they must have believed that nevertheless a layman like myself might find some subject bearing on your studies upon which he might with propriety ask your attention for a short time, and I am bound to accept their view.

There is one characteristic of curative science which justifies the expectation that all who are capable of understanding scientific reasoning will have given some attention to it. It is that we are interested in its results as deeply as you are. It is true that we are not qualified to rank ourselves among the combatants, but the prize that is being fought for is our own health and our own lives as much as yours, and it is no wonder, therefore, that the movements on the field are scanned with the closest attention by us though we are only spectators. And it is less difficult for me to find some common ground on which I can speak to you because the period of my thinking life has been nearly co-extensive with the remarkable enlargement of our field of knowledge which followed the discoveries of Pasteur—discoveries which revolutionised our conceptions as to the causation of disease. The aid of experiment has been called in to an unprecedented extent to solve riddles which formerly would have been thought to belong solely to the domain of clinical observation and its attendant empiricism. The work that experimental science has thus done is of such a nature that it can to some extent be appreciated even by those whose training in science has been of a general rather than of a special character.

I can claim for myself to have been a close observer of these advances in science from the time when at college I first read the lectures of Lord Lister on the then novel application of antiseptics to surgery. In following these discoveries I have striven to realise to myself the world of minute life which they reveal, the working of the laws which govern it and its influence on health and disease, and I have thought that I can best occupy your time if I put before you the picture which has thus been formed in my own mind of the interaction between ourselves and this other world by which we now know ourselves to be surrounded. By so doing I am freed from the danger of appearing to try to teach those who know so much more than I or to ape an authority which I do not possess. I shall only aim at showing you how these great discoveries, which will always make our age famous, shape themselves to the mind of a humble looker-on, and if I had to put a descriptive heading to this address I should plagiarise from Robert Browning and entitle it, "How it strikes a Contemporary."

In reviewing the forty or fifty years that have elapsed since the birth of the new conception of the nature and causation of infective disease I mentally divide it into two epochs, in the first of which scientific thought concerned itself mainly with the attack of these our unseen enemies, and in the second with the defence. This division is necessarily a rough one and much overlapping must be admitted. The new knowledge early showed that it brought with it new power, and some of its most brilliant practical applications belong to the first period. On the other hand, our knowledge of the organisms that attack us is still being added to, and much yet remains to be done in this field. Nevertheless, the division into the two periods is not unscientific, and it is useful in clearing our ideas. The ascertainment and the comprehension of nature's defence against micro-organisms came long subsequently to the discovery that to their action were due the numerous infective diseases to which men and animals are subject.

I do not propose to dwell at any length on the events of the first period, which must be well known to you all. It began when the classical experiments upon anthrax demonstrated that this fatal disease was due solely to the presence of a definite micro-organism. A like demonstration rapidly followed in the case of chicken cholera. But these and other subsequent demonstrations had consequences extending far beyond the instances to which they particularly related. The scientific world recognised that for the first time infective diseases had been traced to their true causes. Up to that time the causation of such diseases had been the subject of conjecture and hypothesis only. Doctors and chemists had talked learnedly of such and such a disease being due to a particular virus, the existence of which was assumed, not proved. But now one infective disease after another had been tracked experimentally to its cause, and in each case that cause had been found to be the invasion of a specific micro-organism. In the presence of such demonstrations conjectural hypotheses could no longer stand. The *onus probandi* was rightly held to be changed, and in the absence of proof to the contrary infective diseases were taken to be due to the presence of such organisms. All reflection as to the characteristic phenomena of infectious diseases confirmed this view. The circumstances under which infection ordinarily takes place are such that they preclude the idea of anything but a microscopically small quantity of matter being transferred—an amount so small that any physical or chemical effect of the transferred matter must be negligible—and yet in the resulting disease not only are the disturbances of the whole organism most formidable but the actual amount of infective matter generated must to all appearance be illimitably greater than that which originally caused it. All this is so strikingly in harmony with the almost infinite powers of self-multiplication of micro-organisms that when the mind has become familiarised with the idea that micro-organisms and infectious diseases may stand in the relation of cause and effect, it becomes difficult to imagine that the cause of such diseases can be of any other nature. One instinctively thinks of living germs as the cause of all infective disease. And this instinct has not proved misleading. Gradually the list of infectious diseases that can actually be traced to specific micro-organisms has swelled and in it are now found many of the most serious that afflict mankind, and no one doubts that it is only due to our imperfect methods of investigation that the list does not include all.

A curious extension of our knowledge has resulted. Although, no doubt, the original impulse to the study of the causation of disease by micro-organisms was given by the case of infectious diseases, it has turned out that such diseases by no means furnish the sole or even the most remarkable instances of such causation. No one would have called scrofula an infectious disease, and few would even have applied the term to its companion phthisis, yet they are now known to be due to micro-organisms, and probably the same may be said of other diseases of the respiratory system. We realise now that although infectiousness implies that the disease is due to living germs the converse is by no means necessarily the case. In truth, infectiousness is an accidental consequence, due to the infected organism giving off contaminated matter in some form in which it is likely to be transferred to other organisms. In many cases, such as small-pox and influenza, we are wholly ignorant of the way in which this transference is effected, but no one doubts that it occurs. But if the infected organism has no tendency to give off infected matter, or only gives it off in some form not leading to such transference (as, for instance, in furunculosis or localised tuberculosis), there is no reason why the disease should be infectious. Hence it is impossible as yet to tell how widely the microbic origin of disease extends. It may well be that some constitutional diseases as yet unsuspected may ultimately prove to be due to micro-organisms that have established themselves in the system and give evidence of their existence only by the mischief which they work. Nor does this exhaust the evil wrought by our minute foes.

Many kinds of micro-organisms become permanent residents with us—kept under in normal health but ready to multiply and become dangerous as the sequelæ of disturbances such as those produced by a serious illness of almost any type. In short, such organisms may claim to be wholly or partially the cause of most morbid conditions of the system, and it is no exaggeration to say that the discovery of means of successfully combating them merits to be regarded as the greatest problem of curative science and one of unrivalled importance to the world at large. I shall now consider what the new knowledge has taught us as to our defence against these ever-active enemies.

To understand and appreciate this aright one must first get a clear idea of what is to be defended and how it is situate. The human organism, like to that of all the higher animals, must be regarded as being composed of cells of varied structure, arranged no doubt in groupings essential to their functional activity, but nevertheless possessing each its individual life with all its necessities. Each cell must receive due nourishment and must be protected from influences injurious to its individual vitality if it is to continue its effective life. This is, of course, true of all living cells, however independent their existence may be. But a cell in a complicated organism differs in two main characteristics from those that live a wholly independent life and who represent doubtless its remote ancestors. In the first place by changes both in structure and function it has lost the power of "fending for itself." It has not only lost the power of locomotion, but it has lost in most cases entirely, in all cases to a great degree, the powers of seeking and capturing its prey which exist even in the most primitive forms of life. On the other hand, it has acquired in a high degree certain capacities of a kind that would be useless to the independent cell in its struggle for existence, but which are essential to the captive cell if it is to perform its special function in the organism of which it is a constituent. In a word, the cell has become highly specialised at the cost of its general capabilities. It presents an example of the last stage of the process which Haeckel termed "the Division of Labour in Nature." Like to the members of a civilised community each cell does some special work and becomes adapted to do that work and only that work well.

But if Nature in building up sentient beings endowed with their wonderful capacities is to have the advantage of these highly specialised cells, she must be content to take the responsibilties they bring with them. Those that she uses for her purposes are, indeed, far removed from the simple ancestral forms that seem to find means of existence everywhere. It is not to be wondered at if for the mechanism of the sense-organs, and still more of the brain, of a vertebrate, cells must be so highly specialised that all their vitality seems concentrated in the power to respond to some one particular stimulus or to manifest some one particular reaction. But in proportion to this concentration on their special work comes the need that all their wants should be catered for by the organisms as a whole. This implies not only the provision of the precise nourishment which they require, but the protection from all that would be hurtful. With the high specialisation has come increased delicacy. You have made your flowers more splendid by making them hot-house plants. You must now shelter them from every breath of the cold wind outside.

To maintain unchanged the environment of these delicate cells is Nature's task and she performs it wondrously. The body as we see it is like to a fortified city: it shows only the outer ramparts which nature uses to protect the community within from disturbance coming from without—the first line of her defensive works. If we look within we find further provision for excluding interference with the life of the individual cell. Each cell is in a world of its own cut off from the external world. Penned up amongst its fellows its real environment is represented by the blood-stream which circulates all around. This is to it the external world in which it lives and works and from which must be satisfied all its needs. The blood brings to it its food and the oxygen necessary for its work, and removes directly the main combustion products and indirectly all the products which result from its activity. The blood is therefore the environment which Nature must keep constant that the existence of these highly specialised cells may be preserved. Consequently we find in the body manifold adjustments to maintain the blood uniform in quantity, temperature, pressure, gaseous contents and fluidity, and though its composition is such that it defies rigorous analysis we can see enough to know that within certain limits it also is uniform. Indeed, so limited are the specialised powers of the cell that it is more than probable that it would be incapable of feeding itself from any other medium than one just so composed.

But these delicate cells are not all specialised in the same way. They differ widely in structure and function, and this variety of specialisation necessitates a corresponding variety of provision for their individual needs. Daily the complexity of composition of the blood stream is becoming more manifest. Everyone remembers the astonishment and delight with which the discovery of the cure for myxœdema was hailed. What did it tell us? It showed that for some groups of cells necessary for the proper working of the organism as a whole a special food of definite chemical composition must be provided; that if this food was not present the body became diseased; that in the healthy body this food was elaborated in the thyroid gland, but that if that gland was incapable of performing its work the food might be brought from without and the cells that needed it would be equally satisfied with the provision so made. How many other such special foods for special types of cells there may be in the blood we cannot guess, but already the morbid developments which follow on injury to apparently useless organs warn us against viewing the thyroid gland as an exceptional case. And after all such marked and discrete essentials are only simple features of the blood stream. The modern discoveries to which I shall presently refer testify to, and give us glimpses of, an almost infinite complexity far beyond the mere presence of such well-defined components.

It is in this the true environment of the cells of which the body is composed that we must study both the attack and the defence in the war with micro-organisms if we would understand them aright. For not only is the blood the very life of the organism by reason of the all-important services that it must perform, but it supplies the means of complete intercommunication. Once get access to the blood stream and the way is open to every cell. To recur to the metaphor of the fortified city, the blood channels are the streets which lead to each house. And the metaphor is still more apt in this case because, as in the case of a city, these channels must be kept free and open by reason of the necessities of the citizens themselves—that is to say, of the cells. Their own nourishment and life depend on the existence of a free circulation, and, whether there be enemies within the streets or not, they cannot close them except at the cost of the death of the secluded part. In this the blood circulation differs from the secondary and more sluggish lymph circulation where nature seems able to set up barricades in the form of glands to arrest and partially cut off intercommunication. The blood stream must be kept free both to friends and to such foes as have passed the outer defences and gained access to it. And it would seem that a micro-organism that has won its way to the blood stream must find surroundings almost ideally fitted for its growth. Experience has taught us how numerous are the types of microbes that actually thrive on the blood fluids, and the well-known adaptiveness of micro-organisms in general makes us feel that but for some hidden cause the rich nourishment that is on its way to feed the specialised cells of the body would be an admirable nidus for them and suffice for almost infinite multiplication. What can be found to check such invasions?

Those who study Nature as did our great poet,

> "considering everywhere
> Her secret meaning in her deeds,"

and who would measure the probable consequences of such an invasion by the precautions that nature takes to prevent it, must find abundant evidence that she regards it as a grave danger. The skin, her first line of defence, is so elaborately constructed and so efficient that though microbes swarm around and even upon us they rarely effect an entrance while the skin is healthy. How successful is this defence is shown by the difference it used to make in surgery whether in an accident the skin was broken or not, and the gratitude that we rightly feel for the triumphs of the antiseptic and aseptic methods is a confession of the importance of the defence of the skin for which these methods provide valuable though imperfect substitutes. If by a wound this defence is broken down the blood pours out to form a clot and thus, if possible, to protect the exposed surfaces. Should microbes

succeed in passing through the skin Nature is active in her efforts to minimise the evil and restrict its area. She seeks by inflammatory processes to prevent communication with the general circulation—building a rough but efficient wall which she can defend more or less well and through which she can and does pour her defending forces. In all this she acts as does the commander of a beleaguered fortress when a practicable breach is made in his walls. He builds a rough barricade behind the breach so as to keep the foe from penetrating into the town even at the cost of abandoning for a time a part of his territory and leaving it more or less completely in the enemies' hands. Thus we see colonies of microbes which are capable of producing a general infection, such as anthrax or streptococcus, successfully localised and kept outside the general circulation by such means.

But there are, and must be, weak spots in these defences. Like every beleaguered fortress, the body must be provisioned from time to time, and in this case it must also be constantly provided with oxygen. It is the portals at which air and food are taken in which are so difficult to defend, and it is through them that lodgments are generally made. But whether they be effected thus or otherwise, it is inevitable that from time to time invasions must take place which achieve either partial or complete access to the blood stream, and in dealing with disease it is these that we have to consider. In other words, the body must be looked upon as a fortress whose external defences against micro-organisms cannot be trusted and are not in themselves sufficient to protect the environment of the cells of the body.

Let me now turn for a moment to an apparently different class of case. You see a ship that has come safely through a stormy voyage. You know that the waves must have buffeted her, that she must have been rolled from side to side and yet she has emerged safely. You say that this is due to her stability. Yet she is not stable if stability means that she can defy the forces that bear on her to move her from her normal upright position, for you know that the slightest roll of the sea or even the slightest puff of wind will make her heel over. She is stable because when made to lean over there is thereby generated a system of forces tending to return her to her place—called, I believe, by naval architects the "righting couple"—which grows greater the greater is the displacement and thus ultimately becomes sufficient to overpower the disturbing forces. Unless this be present the ship must inevitably capsize when made to lean over, and as you are sure that in the storms with which she has met she must again and again have been rolled about by wind or waves, and as you see that she has arrived safely you know that her construction must be such that disturbances tend to right themselves. A like conclusion forces itself upon us when we think of a living organism which throughout its whole life has been exposed to attacks from the micro-organisms that surround it, some of which attacks must inevitably have led to successful lodgments of the enemy within the organism. Could it have survived—Nay, in this case, remembering that the organism is itself the offspring of a long line of development through individuals who have lived their lives and continued their race, we may ask the question of ourselves in the still more striking form—Could the organism ever have existed had not these attacks in some way or other operated to bring into existence the necessary forces of defence?

To bring the metaphor home, let me take a severe but not fatal case of an infectious disease, such, for instance, as typhoid fever. The original infection is minute, and the body into which it is conveyed is healthy, yet the microbe increases beyond all power of calculation and assailing the vital functions of the body brings the patient to the verge of the grave. At that moment when his strength is at its lowest, when his vital powers are well-nigh exhausted, when probably each microbe of the original infective matter is represented by countless millions of equally virulent microbes as capable of infecting a healthy man as were the original invaders—at the moment, in short, when the invaders' strength is so high and that of the organism is so low the tide of battle turns and the enfeebled body repels an enemy immeasurably more strong than that which the healthy body failed to keep in check. Some righting force, some powerful influence tending to bring back the organism to its normal state must have been developed during and by the sickness which makes the sick man triumph where the healthy man could not resist. Like to the ship in the storm the "righting couple" which draws it back, springs from the danger itself and proves itself to be strongest when the storm apparently is doing its worst.

While the phenomenon of recovery from a disease caused by an invasion of microbes capable of limitless multiplication points with certainty to the generation of some such righting force there is another phenomenon equally familiar to us which ought to have taught us an equally valuable lesson. Take the case of a man who has just recovered from an infectious disease. He may be in the company of convalescents like himself who would probably be dangerous centres of infection to a man who had not had the disease. But no one expects him to take it. Experience has taught us that for a time there is no fresh susceptibility. The extent of this so-called immunity varies within the widest limits from a long and often life-long protection in the case of small-pox to a short and uncertain one in influenza. It sometimes fails, as in the case of relapses, but on the whole it is the ordinary accompaniment of recovery from such diseases. It shows that the effects of the righting force last after it has done its primary work of restoring the organism to its normal condition.

It was in the direction of this immunity that the first practical application of the new knowledge was made. Pasteur, anxious to protect sheep from the deadly anthrax, and having found out a method of producing an attenuated strain of the microbe, hit on the idea of inoculating sheep with this weaker form of anthrax microbe. It gave the sheep a mild attack from which they recovered naturally. This left a state which, though they could not wholly resist a virulent inoculation, enabled them to bear such an inoculation without serious disturbance, and thereafter they were found to be immune for a considerable time. They might be put among an infected flock or even inoculated with virulent anthrax without taking the disease.

Although the novelty and wide practical outlook of this discovery excited universal interest, it led to little speculation as to the *modus operandi* of the process. It was regarded, I think, both by Pasteur and the world at large, as being merely a case of putting the animal in the position of having had the disease, and the brilliancy of the discovery was considered to consist in that it taught us to do this without endangering the life of the animal. Few asked themselves how it was that an animal was less likely to get the disease because it had recently had it. This was so well-known a phenomenon that it was accepted as natural without further inquiry. The explanations that passed current among those that happened to think about it were either that the microbes exhausted the nourishment to be derived from the blood or that they fouled their habitat by their own products. In either case it would follow that the blood would be left in a condition in which it could not support that form of life, and the period of immunity was supposed to measure the time which the blood required to return to its normal state. Neither of these conjectures was supported by experiment, and both had soon to disappear in the presence of further knowledge.

The insufficiency of such explanations is made manifest when we consider the remarkable discoveries relating to diphtheria, which, to my mind, inaugurate the next stage in the advance of our knowledge. It was found that the inoculation of the serum of the blood of an animal that had recovered from diphtheria would enable an animal to support an inoculation of diphtheria itself that would otherwise have proved fatal. If we had to choose between the two hypotheses that I have mentioned such a result must make us reject the suggestion that immunity is due to the exhaustion of the nutriment in the blood, but it might be held to support the rival theory. But it was established that the diphtheria microbe works not by spreading throughout the organism but by producing from comparatively localised colonies an intensely powerful poison (or toxin, as this class of poisons is now termed), and the disease we know as diphtheria is the result of this chemical substance, and can be produced by injections of it without the intermediation or presence in the body of any microbes. It was also shown that the protective serum of which I have spoken is produced when this poison is injected into animals in non-fatal doses and is now universally obtained in this way. It is not necessary that they should have been infected with diphtheria microbes. The injection of the poison is equally followed by the production of the protective serum.

I need not tell you of the practical importance of this discovery. But its theoretical importance is equally remarkable. The serum so produced protects animals against the consequences of injections of the toxin which originally caused it to be produced. In other words, it contains some substance which is an antidote to that toxin. So absolutely is this the case that it is found that when the toxin and the serum are mixed in proper proportions the mixture is a harmless neutral fluid that can be injected without producing any toxic effects. And remember that this antidote was generated upon the injection of the poison. It did not exist previously in the blood. It was Nature's response to the attack. The attack consisted in introducing into the animal from which the serum was obtained a dose of a certain poison—a poison no doubt of a complex proteid type, but none the less a definite chemical poison—and to this the organism responded by generating its antidote. We have here no intermediate and undetermined action of living microbes. No doubt in past ages such an attack must have been made by diphtheria microbes which would have generated their poison and set it free to work its mischief. But in the production of serum the action of the microbes is eliminated altogether, and it is found that the mere presence of the poison leads to the generation of an antidote which, if generated quickly enough and copiously enough, nullifies the poison entirely. The immunity that he enjoys shows that this is the case in the horse. In man the large mortality in diphtheritic cases shows that if the attack is a bad one the response may not be adequate in amount, or—which is more probable—that it comes so slowly that the poison has had time to do fatal damage before the antidote arrives. By the serum treatment supplies of the antidote are brought from without which protect the system until the attack is over or until the organism is in a position adequately to defend itself.

I shall never forget the impression made upon me when years ago I first realised the meaning of this mode of generation of diphtheritic antitoxin. It seemed to open up a new world of vital activities to find that on the injection of a poison a chemical substance capable of neutralising the injected poison and that alone should thus be naturally produced. For that which is generated is not of the nature of general protection. It is specific. It is an antidote to that particular toxin and to no other. I was used to such vague phrases as "rousing the resisting powers of the system" and the like, and it would not, I think, have astonished me had it been shown that such poisons stimulated elimination or some other defensive action of the organism. But I was not prepared to find that Nature, like a skilled boxer, hit straight back at its assailant and at him alone. This lesson has often been repeated since. I do not allude merely to the case of tetanus, in which are repeated the phenomena which I have described in relation to diphtheria, but to the investigations which show that when a foreign proteid substance is introduced into the blood an antibody is normally formed therein which has a special effect on it and it alone, usually in the direction of neutralising it. Thus by repeated small injections of snake poison you can get a serum that has the properties of an antidote to that particular venom. The instances of this strange phenomenon are so varied that they point to the existence of a general law in the case at all events of the higher animals, although, of course, we do not as yet know the conditions and limitations of its action so as to be able to formulate it with exactness. That it has become a general law seems to be supported by our finding that it is followed in cases in which we can see no possibility of its having ever been serviceable in the struggle for existence. Thus the blood of one kind of animal has generally no dissolving powers on the red blood corpuscles of another kind. But if the former animal be subjected to inoculations of blood from the latter its blood gradually acquires a power of dissolving those corpuscles. Its behaviour will not be changed towards red blood corpuscles in general, but only towards those coming from the kind of animal from which the inoculations were taken or some animal closely related to it.

Let me pause here a moment to consider how far we have got in our subject. We have found that in the cases of which I have spoken there is a true righting force. The poison that is introduced starts the manufacture of its antidote. The organ is protected by that which springs into existence on the attack. And the most characteristic feature of these phenomena is that the remedy is specific—it avails against the poison which creates the need for it and against no other.

It would seem as though we had wandered somewhat from the subject of micro-organisms in dwelling thus upon the action of the organism towards proteid poisons. But the digression is in appearance only. Not only are microbes the chief means by which such poisons are introduced into the system, but, conversely, there are few microbes which when they have gained an entrance into the system do not generate toxins to the direct action of which much, if not all, of the mischief must be ascribed. In some cases, as, for instance, in diphtheria, the microbes do not seem to be too numerous or too widely distributed in the body to be dealt with by natural processes to which I shall presently refer and the danger wholly consists in the quantity and virulence of the poison which they generate before they can be overmastered. I liken such microbes in my own mind to invaders who promptly start conflagrations. They may be a mere handful in number, incapable of effective resistance to the forces that will be brought against them, but the conflagrations they have started must be put out or there will be no city to save. This is the sole service which the antitoxin renders. I can see no ground for thinking that it affects the microbes themselves; indeed, they can readily be cultivated in it. If they are got rid of it must be by other agencies. It is to these agencies that I wish now to direct your attention—the agencies that get rid of the invaders themselves. In other words, What is the nature of the righting force which gives the necessary stability to the organism in the face of an invasion of living microbes and restores it to its normal condition?

I have already referred to the experiments of Pasteur by which he gave to sheep protection from anthrax by inoculating them with cultures of living anthrax of graduated virulence. Our knowledge of the nature and origin of this "righting force" starts with the discovery that in certain cases—such, for example, as typhoid fever—an analogous protection can be obtained by inoculations of dead cultures of the corresponding bacilli. The change seems at first sight to be but small, yet in reality it is of vast importance both practically and theoretically. In practice it makes it possible to give substantial immunity to the individual without requiring him to undergo an actual attack of typhoid fever with all its attendant risks to himself and others. But it also teaches us much as to the nature and causes of immunity in that it shows that the introduction of dead microbes into the body is sufficient of itself to bring about changes which for a longer or shorter time prevent the living microbe from making good its footing there. This cannot be due to any exhaustion of nutritive material, because the inoculated microbes are dead, nor to pollution by microbic products to such an extent as to render the body incapable of supporting that form of microbic life, because the total amount of the inoculations represents but a small fraction of the quantity of microbes that must be present in an actual attack of the disease. No such simple application of the laws that limit the multiplication of microbic life suffices to explain the phenomenon. It forces us to realise that we are here in the presence of some reaction of the organism which results in rendering it in the future an unsuitable habitat for that particular microbe.

We turn to the blood-stream as the natural, and perhaps only possible, seat of such a defensive action. The determination of the changes effected in it is facilitated by the fact that with proper precautions a sample of the fluid portion of the blood can be drawn off and kept for a time without substantially affecting its properties. To this can be added living microbes in any desired numbers, and thus the effect of the blood of an immunised animal can be directly observed and compared with that of a non-immunised animal. It is thus found that the blood may become hostile to the microbe in more than one way. In the first place it may become directly poisonous to it. This property may be present to some extent in normal blood as in the case of the typhoid bacillus, but even in that case it is largely increased in the immunised person. It is obviously due to the production in the blood of some substances which combine with the body of the bacterium because the destructive action can be removed by adding to the fluid a sufficient quantity of bacteria—living or dead—when it becomes capable of supporting living bacteria in the

ordinary way. Let me call your attention to the lesson this teaches us. The direct effect of the introduction of bacteria into blood is therefore to lessen any bactericidal power it possesses by using up *pro tanto* the bactericidal substance. On the other hand, introducing them into the blood while within the organism causes a generation of this substance, and a large increase of the bactericidal power of the whole of its blood. You see how this points to our having here to deal with a true righting force—one called into existence by the disturbance, yet contrary in its effect and acting to undo that which caused it.

A second way in which the blood becomes inhospitable to bacteria is that without directly killing them off it renders them helpless and inactive by agglutinating them together in clumps. This also must be due to the generation of some substances in the blood which appear to obey much the same laws as the bactericidal substances of which I have just spoken, and I should not have expressly referred to it were it not that it furnishes us with a striking proof that these substances are present and take a real part in the defence of the organism in actual disease. Everyone knows how insidious is an attack of typhoid fever—how it is characterised by the absence of all marked symptoms if we except variations of temperature. A sure method of diagnosing it in its early stages was sorely needed and one has been found. A small quantity of the fluid part of the patient's blood is drawn off in a suitable tube and some living typhoid bacilli are added to it. If they agglutinate, the patient is suffering from typhoid fever. Nature has begun to generate the defensive substances against that bacillus which she would not have done had she not been first invaded by it. You learn of the attack by finding that the defence has begun, just as the inhabitants of a beleaguered fortress might first learn of an assault by hearing the sound of their own guns opening fire on the assailants.

I see no reason for doubting that both these types of defence have in the past been useful and perhaps indispensable in protecting the organism throughout its evolution. But it is almost impossible to estimate the extent of the service they render. They act automatically and get used up in so doing. No doubt they kill or incapacitate vast numbers of microbes and any progress the disease makes is due only to those that escape them. But the extent of the service they render remains unascertainable because there are no means of determining what would have been the condition of things if they had not been at work. But there is a third type of defence to which this does not apply and which—so far as I can judge from the evidence—has a far higher claim on our attention not only by reason of its universality and efficiency as used by Nature but because it is such that we can avail ourselves of its remedial power in the practical treatment of disease. To deal with it adequately I must say a few words more as to the constitution of the blood stream. We all know that the blood is not merely a fluid. It contains organisms in enormous numbers—viz., the red and white corpuscles. With the former we have nothing to do to-day. The latter, which number in man about 8000 in a cubic millimetre, are many times the size of any micro-organism with which we are dealing, but nevertheless by their power of altering their shape by elongating themselves they are able to pass freely about among the tissues of the body in every direction, not only in the blood stream but after leaving it. These corpuscles, though produced and living in the body and essential to its existence, enjoy in a sense independent life, and doubtless obey laws such as govern other life of the same amœboid character. We may expect them also to possess inherited tendencies derived from and suited to the habitat in which they live and in which their precursors must have lived throughout the ages that have elapsed since the organism first came into existence. Long-continued observation distributed over a very wide range of different forms of life has during the last 30 years established the fact that these white corpuscles form a sort of police of the body whose business it is to arrest foreign bodies that make their entrance, and either to prevent their gaining access into the blood or to remove them from it. On the introduction of foreign bodies—say, bacteria—into the body of an animal there usually ensues a flow of lymph to the spot which is quickly followed by an incursion of large numbers of these white blood corpuscles which seize upon and ingest the bacteria, and ultimately digest them, though slowly. If the number or avidity of these corpuscles is sufficient the infection is suppressed, but if from the number of the bacteria inoculated or the rapidity of their multiplication they are too much for the white blood corpuscles they establish their footing, and an infection ensues which may remain local or may become general according to the circumstances of the case and the nature of the bacteria. I need not, I think, apologise for thus briefly referring to these facts which must be familiar to most of you because I wish them to be before your minds while we deal with this part of the subject. They obviously explain how it is that we and other animals are immune to attacks of many kinds of bacteria which in themselves are fully capable of producing disease. It is not that the blood is unsuited to nourish them, for some of them will multiply rapidly when its serum is used as the cultivating medium. But if the white blood corpuscles are more than a match for them they can gain no footing in the body. Let me give an example. The frog succumbs rapidly to even small doses of the toxin generated by the cholera microbe. Yet it is immune to inoculations of those microbes because the zest and vigour with which its blood corpuscles attack them is such that they are devoured before they have time to generate the fatal toxin.

But the problem with which we have to deal is microbic disease, and the word disease implies that the microbes have been at the outset too strong for the defence and have secured a lodgment. What effect has this on the action of the white blood corpuscles? Countless experiments have established that its normal consequence is to increase the avidity with which each corpuscle attacks and devours that particular microbe while it produces no change in its behaviour to other microbes. But the strangest part of the story is that this is due to no change in the corpuscles themselves. Transferred to the serum of a normal man they show no such predilection for these special micro-organisms. The change is in the fluid part of the blood in which they move and live and if white blood corpuscles be brought from a normal man into that same fluid they will show the same greed. It is the flavouring that effects it—their appetite for the microbes is increased because of the presence of the changed serum, just as the appetite of a small child for bread and butter is vastly greater than his appetite for dry bread.

Let me now turn to that which specially distinguishes this third mode of defence, and which has led alike to the recognition of its supreme importance in nature and to its use in actual practice. It is that we can measure rapidly and with substantial accuracy the effect it produces. Equal quantities of the bacteria are exposed to the action of equal numbers of white blood corpuscles for the same length of time in the one case in the presence of normal blood serum and in the other case in the presence of the blood serum of the patient. Slides are made of the results and stained, and under the microscope they show clearly the bacteria within the corpuscles which have ingested them, so that an average can be obtained of the number per corpuscle so ingested in each case. The ratio of these numbers (now known as the opsonic index) shows to what extent the patient's blood is more active in attacking the bacteria than is normal blood—that is to say, to what extent it has been roused to the defence of the organism. In the case of the microbes that we recognise as sources of disease it is found that this ratio is normally raised by inoculations of the dead microbe, and this is the case whether the body of the patient is infected or not. We are justified, therefore, in thinking that, in the absence of exceptional circumstances, this is a form of defence of which Nature universally avails herself when such a microbe gains entrance into the body.

But how does this show the importance of the part it plays? To appreciate the proof of this you must study the history of its use in practical therapeutics. We all of us bow to the authority of experimental science. But when experiment has resulted in actual use in practical life the authority of the experience so acquired is yet higher. And for years past, primarily in England (which holds a proud position as pioneer in the use of this method) and subsequently in many parts of the world, patients suffering from microbic diseases have been treated by it and according to its indications. The all-important questions of the magnitude and frequency of the inoculations have been determined by the effect on the opsonic index, and often it is only by that index that the nature of the hidden foe has become known. Throughout this long trial it has been found that the clinical symptoms normally support the testimony of the opsonic index—

that when it is high the disease loses power and that when it sinks too low the disease makes progress. Such an accumulation of observations renders highly probable, though it does not absolutely demonstrate, that this is the main operative defence in the case of bacterial diseases. But it at all events demonstrates that for practical purposes we may take it to be so. The correspondence between the variations of the opsonic index and the clinical symptoms which can be obtained when experience has taught the proper dosage shows that even if we assume that other defensive forces of importance are present they must keep step with it, must vary as it varies, so that if we fix our eyes on its indications and act as though it alone existed we shall be following the right course, however many secret allies it has in its work.

But the success of this treatment of actual disease can hardly be understood without the consideration of one difficulty which must, I am sure, have occurred to many of you in thinking over the theoretical explanation of its action. If the presence of bacteria thus increases the ferocity of attack of the white blood corpuscles, why is it necessary to introduce additional ones in the case of actual disease? In such a case the infection already exists; the microbes are already present in the system. Why do not those microbes operate to produce the desired effect? The use of the method to produce immunity against future attacks presents no such difficulty, because you there introduce the microbes into an organism that is free from them in order artificially to stimulate it to take up a position of active defence. But this explanation seems not to apply where similar microbes are already present. The true explanation of this apparent parodox is, I think, to be found in the mode of existence of the microbes when they have effected an entry into the body. Comparatively rarely do they succeed in maintaining themselves in the full blood stream. In the cases in which they do so (which are known as generalised infections) the battle is almost always short, sharp, and decisive. It would seem that the body cannot long tolerate such an intrusion by microbes, though the same cannot be said as to organisms of a somewhat higher type. In microbic diseases the microbes generally locate themselves in more or less clearly defined positions or foci of infection, and maintain themselves there with a certain degree of permanence. Such localised infections are so much more common than the general distribution of the bacteria throughout the system which is found in generalised infections that they may claim to be the normal type.

Let us consider what goes on at such a focus. For the sake of clearness take the ordinary case of an infection by staphylococcus such as a boil. In it and along its borders the microbes abound so that they reign supreme. Nature for her own purposes has been desirous of cutting the part off from the general circulation, and has, for better or worse, succeeded to a great extent in so doing though perpetual frontier fights are still carried on. The effect of this is twofold. Nature reaps the benefit of isolating the invaders in their territory but it is at the cost of leaving it unswept by the blood stream so that the blood but little affects or is affected by what lies therein. The focus of infection constitutes a sort of Alsatia which the police leave unraided so long as its inhabitants keep within its borders. Such conditions contrast strikingly with those which are present when an inoculation is made. The microbes are there introduced into healthy tissue and in moderate numbers. They are not living microbes and so cannot possibly resist the attacks of the white blood corpuscles. If the actual generation of the protective substances takes place in the tissues they are surrounded by tissues in their normal and healthy state; if it takes place in the blood they are in free contact with it. That they should produce effects which the microbes in a focus of infection fail to produce ceases to be difficult to understand. It is an undoubted fact that they do so, inasmuch as otherwise it would be impossible to effect anything by inoculations. We should have to rest content with the results of the automatic action of Nature. We could neither strengthen nor assist it. Perhaps at first sight the fact that the microbes in the inoculations are dead would seem to make a difficulty in understanding their being so effective. But this only means that Nature recognises her minute foes by the taste of their flesh. These defensive reactions have been slowly evolved throughout long ages when the presence of microbes—alive or dead—could only be due to an invasion, and it is no wonder, therefore, that the sudden appearance of a considerable quantity of them—whatever be their state of vitality—should be considered by the organism as a sufficient warning that it is time to call forth the forces of defence. When the inoculation has succeeded in raising the avidity of the white blood corpuscles it is easy to see what happens at the focus of infection. The sulky and ill-kept truce is no longer observed. The corpuscles are able successfully to penetrate farther across the boundary because they can dispose of so many more of its defenders. Gradually the ground is cleared and the focus diminishes in size, and if the reaction to the inoculation be adequate and sufficiently long sustained the infection wholly disappears. Such a result is a matter of daily experience with staphylococcus in boils and carbuncles, with streptococcus in erysipelas and abscesses, with tubercle in glands, joints, and the other localised forms which used to be known as scrofula and in many other cases. The list of successes is a long one—far too long to be given here—and I am convinced that to make it many times as long only needs more workers in the field.

In thus giving my interpretation of the successes of inoculation in localised infections it must not be thought that I limit it to cases where definite foci exist. Analogous protection is doubtless found by microbes that affect special membranes or special organs and the structural changes which they cause may assist in sheltering them from the blood stream. Nor do I wish to imply that the treatment may not ultimately be made serviceable in generalised infections. But up to now its most marked and most uniform success has been in cases where the microbes have become more or less permanent inmates of the body.

It is the discovery that inoculations of dead microbes will increase the avidity with which white blood corpuscles attack microbes already present in the system which has lifted up therapeutic inoculation and has assigned to it a far more important and useful sphere of action than that which the earlier work indicated. That earlier work only aimed at rendering organisms immune to special bacteria and the memory of those early days has caused the term immunisation to cling to the whole subject of treatment by this type of inoculations. I regret it because it gives a false idea of what is now its true aim. It seeks to defend you against actual present enemies and not against possible future ones. You remember the legend that has been handed down to us about Mithridates, that he had so soaked himself in antidotes of all kinds that no poison could affect him. It would be no very exalted aim to seek to make a world of modern Mithridates, even if it were possible. Moreover, it would be a formidable task because we have learnt that these defences are strictly specific—each protects against the one microbe and no other—so that general immunity could only be obtained by countless inoculations even if the poor tormented body could bear them. It is a much more worthy task to defeat and drive out an enemy that is actually in the field. In such a case we fight only the evils which actually exist and not all possible forms that may or may not exist in the future. In such work the fact that the defence is specific helps rather than hinders us. The cultures can if necessary be made from the invading microbe itself, so that there can be no error in identification, and the importance of certainty in this respect is crucial. How absolutely indifferent microbes are to anything not directed specifically against them is well illustrated by a case of which I learnt a short while ago, where the patient was suffering from tuberculous glands. Treatment with tubercle inoculations healed them completely with the exception of one which continued unaffected until at last it commenced to suppurate. It was then found that the mischief in that gland was due to the presence of a streptococcus. Cultures were made from it, and in its turn that gland also healed up under treatment with inoculations of those cultures. It yielded when the treatment was specifically adapted to it, though it had been utterly unaffected by the previous inoculations.

This subject should therefore, in my opinion, be studied as a curative and not as an immunisating treatment. If I may use such a word it is phylactic and not pro-phylactic inoculation that we need. When we know that immunity of a high order against an ordinary disease can be obtained with little trouble, or when we know that an individual will shortly be exposed to special danger of a known kind, as, for instance, where troops are to be sent into districts infected

with plague or typhoid fever, it is doubtless wise to take precautionary measures. But these may be looked upon as special cases, while the domain of inoculation as a curative agent is well-nigh as wide as disease itself. It thus offers an almost boundless field for study. The fundamental laws on which it rests have been established and rules guiding its practical use have been laid down. But the conditions under which it works best in each case and the most desirable accessory treatment are to a large extent unstudied. I trust that some of those whom I am now addressing will help in these respects to advance our knowledge and enable mankind still better to conjure with Nature's own spells.

Let me now shortly sum up the record of the last forty years as I have presented it. Science began by teaching us that we live as it were immersed in a sea of minute life; that micro-organisms are all around and upon and within us; that they are to be found not only in air and in water but upon almost everything that we touch; that while some are harmless and possibly beneficial to us, some are our deadly enemies. It has since convinced us that all infectious diseases as well as many that are non-infectious are due to these microbes; indeed, that there are few diseases which are not either originally caused or at some later period in their course aggravated by their presence. Life is one ceaseless war against these enemies, and the periods of our too transient successes are known as health. This condition of constant and deadly strife not only obtains during our own short lives but must have equally obtained throughout the long line of development of which we are the result. Yet the victory has not rested wholly with our foes. Our very existence is proof that Nature has at all events learnt how to conquer so far as she needs—i.e., she has not let the individual succumb too early for the continuance of the race.

We have seen how formidable her task is. She cannot effect it by isolation, for we derive our sustenance from without. The need of breath and nourishment compels free intercommunication with the external world, and we must accept its attendant microbic dangers. The choice within is equally fettered. In the life of nations the arts of peace on which the existence of the people depends must be paramount. War is only accessory to them—to assure the possibility of their continuance. Just so in the organism the task of nourishing the cells of the body stands first. It must be performed at all costs and at all risks. She must defend the organism under the conditions of an uninterrupted flow everywhere of a fluid of the highest nutritious value capable of satisfying all the wants of varied and highly specialised cells. And if nutritious to the cells it must be liable to become food to microbes who have had to maintain their existence amid all sorts of environments unpampered by such delicate nursing.

Our examination has shown to us three main characteristics of Nature's solution of the problem. In the first place, we find that she chooses the blood stream as the seat of the defence. Nothing less than this universal environment suffices because the mischief is equally wide. In the second place, we find that the defence is specific—it is directed in each case against the particular assailant and no other. In the third place, we find that in the intervals of the attacks the defence lies in capacities, not, if I may use such a term, in actualities. In other words, it is the presence of the enemy that calls into existence the changes in the blood stream that repel him, and those changes are antagonistic only to that special enemy. We have also seen that her task is twofold. The microbes generate toxins which will poison the organism if not neutralised and the microbes themselves will multiply to a fatal extent if they be not exterminated or at least kept down. Her defence against the first of these dangers is the generation in the blood of a specific antidote to the specific poison. Her answer to the second is manifold but it again is in the form of the generation of defensive substances in the blood. Sometimes the defensive substances are poisonous to the specific microbe, sometimes they cripple though they do not kill. But the defence upon which she seems above all to rely is the generation in the blood stream of substances which make the watchful white blood corpuscles devour that particular microbe with a greater zest until not even its tremendous powers of multiplication can save it from destruction.

In all this we see the action of righting forces—forces that come into operation when the organism is disturbed and tend to restore it to its normal position of equilibrium. In the case of the ship to which I have made reference engineers will demonstrate to you that the stability is given by the action of gravity on the supporting water. But what can be the mechanism here by which it is brought about that the poison generates instead of exhausting its antidote, and that the presence of the microbe leads to the production of a suitable condiment, and thus stimulates instead of satiating the appetite to devour it? To that I can unhesitatingly give the answer—I do not know. And for myself, I might put it in the yet stronger form—I have not the slightest idea. To me the mechanism that underlies these paradoxical manifestations of life is an absolute enigma. I accept them as fundamental laws because experiment has demonstrated their existence. But it has not lessened their mystery. I am aware of the brilliant scientific hypotheses which have been devised to ease somewhat the burden of belief, and I recognise the service they have rendered to investigators while groping their way in the present half light of early dawn. But I would utter a note of warning in their regard. Do not confuse the facts which are learnt by experiment with the hypotheses which are designed to explain them. The former cannot pass away, the latter may have to be abandoned in the fuller light of future knowledge. So long as a suggested mechanism accounts only for the phenomena which gave rise to it, it can only claim to be regarded as a possible solution of the riddle. It is when such a mechanism is found to account also for other phenomena widely different from those that suggested it that it first becomes entitled to claim to be regarded as the actual solution. I reconcile myself to the belief in these mysterious responses of Nature, not by speculations which would lessen their apparent strangeness, but by the reflection that life itself is so mysterious, so inexplicable, that one ought not to wonder that it can only exist by reason of reactions themselves inexplicable. I do not doubt that the part played by micro-organisms in the early days of the existence of life was as important and as universal as it is to-day, and the need of an adequate defence against them must have been a primal difficulty in the path of evolution. In experimentally isolating these laws we are bringing ourselves face to face with the special features of the solution that was found, and, strange though they may be, I do not feel impelled on that account to reject them when I realise that the incorporation into vital structure of some mechanism which would thus provide an automatic system of defence against microbic life must from the first have been a condition precedent of further advance.

Finally, I have called attention to the curative power that the new knowledge places in man's hand. In cases such as diphtheria and tetanus, where the poison is so powerful and so rapidly generated that it constitutes the main danger, we can gain for Nature the time necessary for calling her defensive forces into play by introducing from without supplies of the antidote which she herself has generated abundantly under more favourable circumstances. When a specific danger threatens in the near future we can by sterile inoculations into the organism while as yet unattacked rouse into actual operation its latent capacities for defence, so that if the attack should come it will find them in full play. But above all in that type of microbic disease from which humanity most frequently suffers, where the micro-organisms have located themselves so as to be more or less sheltered from the operation of the blood stream, and thus to avoid rousing its powers of antagonism, we can by like means stimulate the white blood corpuscles of the whole organism to fiercer attack, and as long clinical experience has already shown can little by little drive out the enemy from the position in which it had entrenched itself. In all this we are adopting Nature's means in order to outdo her work. For you who in the future will exercise the high calling of a doctor must never forget that you have set youself a harder task than that with which Nature contents herself. The sacredness of human life in our eyes compels us to keep alive those that Nature would let die—to produce health where she would accept disease—to make life possible under circumstances where she would abandon the attempt. She is satisfied if the efficacy of her defence would save enough. We seek to save all. But though you seek thus to outdo Nature you cannot effect that object better than by wisely supplementing according to individual need that which is done automatically by Nature in racial self-defence. In so doing you will be a useful ally to Nature and fit to fight by her side, for you will have learnt to follow her tactics.

Abstracts
OF
INTRODUCTORY ADDRESSES, ETC.,
DELIVERED AT THE
MEDICAL SCHOOLS
AT THE
Opening of the Session 1909-10.

ST. MARY'S HOSPITAL MEDICAL SCHOOL.

INTRODUCTORY ADDRESS BY H. A. MIERS, D.SC., F.R.S., PRINCIPAL OF THE UNIVERSITY OF LONDON.

Dr. Miers took for his subject "Theories." After a few introductory words he said: Those who possess the rare gift of originality belong to the genus of poets or makers of thought; they can be safely trusted to make something new however often they may be called upon. But it has sometimes seemed to me that though there are comparatively so few who possess this great faculty, it is at the same time true that there is for all people a certain period of life at which they are ready and anxious to invent and to produce something original, something of their own making, and that at this period they generally try to do so, however ineffectual may be the result. It is in the period including the close of school life and the beginning of university life, or whatever comes after school, that most people have been guilty of attempts to write poetry, or have endeavoured to construct a tale, or have believed themselves to be on the brink of a discovery or invention, or have taken up some new idea or theory of life which is, for them at least, a new thing of their own making and a piece of their own philosophy. I do not forget that many of those whom I am addressing are living in this happy and fruitful period. It has been too much the fashion to decry youthful efforts and to endeavour to persuade ourselves that knowledge and experience are required before anything good comes out of a man unless he be a heaven-born genius. For my part, I believe this to be really the productive period of an ordinary man's life, and that he who takes the trouble to search the history of his own mental development will find that anything which is the unaided product of his own intellect dates from this period; that the germ of any original thought which finds its expression in his more mature life is to be traced to late boyhood or early manhood. It is surprising how many authors have delivered their message and have said what they really have to say in their first, or at any rate in an early, book, perhaps so crudely and ineffectively that it has failed to catch the popular attention; it may be only with improved style and knowledge and experience that they have secured an effective hearing. Yet for all that, the later writings have been only developments of the original idea or variations upon the same theme.

Mentally as well as physically the child is father of the man, and it is generally possible to trace any person's original ideas to that early productive period, just as it is possible to find the features of the man in those of the child. The powers of expression may develop, new impressions are received, new ideas are acquired, but the original ideas of that period persist and are a part of one's nature, in a sense quite different from that of anything that comes later; they can never be completely shed, their imprint is permanent. It is something like the effect of the books which are read in childhood: their impression is never effaced, throughout life we regard them with feelings different from those which are stirred by the books that came later, and our childish regard for them persists in spite of our better judgment. But there is this difference between the impressions of childhood and those of manhood: the intellectual events of childhood came from without, and were most deeply impressed because that was the most impressionable period of our life, but the intellectual events of the later epoch of which I am speaking came from within and belong to the creative period. People, of course, change their views, give up the old and take on new ideas, but I believe that you will find that the new ideas which come in later life are generally adopted from others, often consciously adopted, and that the struggle and intellectual turmoil which so often accompany their adoption are due to the fact that they come from without and that a great battle must ensue before they can dislodge that which is really part of ourselves and not consciously derived elsewhere. Left to itself the mind revisits the early haunts, and continual effort is necessary to prevent a return to the thought which originated in that brief creative period.

There are two reasons why I venture to make these apparently inappropriate remarks. The first is, that after a certain age it is not profitable to try to be original; one has no new message to deliver; one must borrow a message from some wiser person or say something that one either said or might have said 20 or 30 years ago. And the other reason is, that in addressing students one is addressing those who are at the most original, inventive, and creative stage of their existence, and it is much better that they should develop their own ideas and foster the offspring of their own brains than adopt the thoughts of others. There is also, perhaps, another reason why I propose to dwell for a while on this subject. At the present time, when education is becoming more and more highly organised, there is a tendency to insist more and more upon the necessity of preparation. Before you can begin one subject you are told that you must master another, and a great part of our life is occupied in preparation for something else; indeed, there are people who, not only in their student days but through their whole life, are so much overwhelmed by the necessity of preparation that they spend it in preparing for things that are never done, endeavouring to master the ideas of others before daring to have ideas of their own, and pass an existence of promise without ever attaining to performance. It is quite clear that if you never undertake anything until you are fully and completely prepared you will not get very far. Considering that all school life is devoted to preparation, one would think that after school days the time had arrived to do some of the things for which one has been qualifying oneself and to develop one's own ideas.

There are some theories of education which are rarely stated as such by their adherents, but which none the less dominate their methods of teaching. For example, the view that it is a sound policy to teach things which are distasteful to the pupil because it requires a greater mental effort on his part to acquire them and is therefore a better training. Or the view that early or even university education is better devoted to teaching things that are never likely to be any direct use to the student than those which will be required by him in his life's work, because the latter are certain to be acquired later in the exercise of his profession or calling; and to teach them savours of technical training and is not education. In the last generation such views were openly expressed, and at the present day they are often at the back of a teacher's mind. They entirely ignore the incalculable value of enthusiasm in one's work, and forget that effort exercised upon something that awakens the interest of the pupil is far more profitable than the forced effort which is unaccompanied by interest. This was the fault of the old-fashioned classical training, or rather of the old-fashioned methods of classical training. It was all very well for the boy with literary instincts and tastes, but for the ordinary boy it was a study which had no point of contact with real life, and was only a task. The very language into which the classics were translated was not English, but the uncouth and hybrid tongue of the "crib." The literary methods of modern teachers, the living discoveries of archæology and philology have changed all this, and a boy or girl who reads Professor Gilbert Murray's translation of Euripides cannot any longer regard the Greek language and literature as a lifeless or barbaric thing. Another educational theory similar to these is the view that you ought to be always amassing a knowledge of facts not for present but for future use. Persons brought up in this spirit, or who of themselves prefer to work in this spirit, not only lose all the present interest in the vitality of their work, but live for the rest of their lives in a continual state of expectation or preparation, and are again investing their intellectual resources in promise instead of in performance. Let us rather be up and begin the work of life.

> "Dimidium facti qui coepit habet: sapere aude:
> Incipe. Qui recte vivendi prorogat horam
> Rusticus exspectat dum defluat amnis: at ille
> Labitur et labetur in omne volubilis aevum."

Or let me recall the words in which Carlyle speaks his heart in the book which contains his message to mankind, the

words that close the wonderful chapter in which that message is really contained :—

> I too could now say to myself: Be no longer a Chaos, but a World or even Worldkin. Produce! Produce! Were it but the pitifullest infinitestimal fraction of a Product, produce it, in God's name! 'Tis the utmost thou hast in thee: out with it then. Up! Up! Whatsoever thy hand findeth to do, do it with thy whole might. Work while it is called to-day: for the night cometh, wherein no man can work.

If there is a time of life at which these words may be taken to heart it is surely that which I have called the creative or productive period, and it will be sad if any of our educational methods or practices tend to stifle the creative or productive power at this critical period.

I must not forget, however, that I am addressing those who are about to devote their lives to the profession of medicine, and that if I have anything to say it must be applicable to the medical student, or I shall not be able to justify my acceptance of your invitation to-day. Well, I think there are two reasons why the line of thought that I am suggesting should be of some profit to medical students. The first is, that, taken as a whole, there are, I believe, no students who are more keen upon their work or take more pleasure in it than medical students, so that they are not likely to be deterred from original thought by lack of interest. There are not many of them to whom their work is merely an educational task: a man rarely becomes a doctor or surgeon unless he feels some call to the profession, and he is generally working, not against his inclination, but in accordance with it. I do not think there is any other professional training of which this is equally true. And the other reason is, that in no profession is preparation more necessary or more arduous than in yours; no other man has to master so many preliminary subjects or spend so much time in fitting himself for his profession by scientific preparation. If the one circumstance is all in favour of intellectual activity and interest, the other seems to be all against it. I wish, if I can, to show how they are to be reconciled.

There is a fable of Æsop quoted by Francis Bacon in his "Advancement of Learning" in connexion with alchemy. Let me tell it to you in his own charming words :—

> Surely to Alchemy this right is due, that it may be compared to the husbandman whereof Æsop makes the fable; that when he died told his sons that he had left unto them gold buried underground in his vineyard; and they digged all over the ground, and gold they found none; but by reason of their stirring and digging the mould about the roots of their vines they had a great vintage the year following. So assuredly the search and stir to make gold hath brought to light a great number of good and fruitful inventions and experiments as well for the disclosing of nature as for the use of man's life.

I desire to bring home to you the lesson of this fable, that an idea, a theory, may give the necessary impulse and may inspire the enthusiasm that leads to good work, even though it be itself an insufficient or even an incorrect theory; for, after all, we have generally to be content with a working hypothesis, and the best of our scientific theories is liable to be overturned and will have to give place to a better. But that is no reason why we should not believe in it and be led by its inspiration. To the greater part of mankind such impulse is necessary, and the work of life without faith in some principle loses its inspiration and its pleasure. We wish to believe that our labours lead to some result and that our knowledge is dominated by some principle, and we like to persuade ourselves that we know what it is. There are, it is true, rare spirits, like Browning's grammarian, "decided not to live but know," scholars and students of sincere and simple character, who are content to labour in the wide faith that earnest toil is bound to lead to useful results, and are content with the life of preparation.

> "This in him was the peculiar grace—
> That before living he'd learn how to live—
> No end to learning."

But not many of us are scholars of this mediæval and cloistered type—

> "Only to ourselves proposing problems proper to be solved
> By ourselves alone—who working ne'er shall know if work bear fruit
> Others reap and garner, heedless how produced by stalk and root;"

and least of all are they to be found in such an active profession as yours; great scholars, sometimes great teachers, may be made of such material, but not, I think, great doctors.

You in your more active life need the inspiration of a theory, the illumination of an idea, which can glorify the drudgery of preliminary studies, and the details of ordinary practice. That is the spirit of modern scientific work: the restless desire to prove or to demolish the theory on which we are working for the moment and to discover the principles which underlie all that we can observe or do. It is this faith in a principle, this hope that we shall discover it, this certainty that our theory is leading us on the way to its discovery, that gives to even the drudgery of scientific routine work such a fascination for those who have once tasted the delight of scientific research. Work illuminated by a theory, or carried on with a general principle in view, cannot fail to be interesting, even though it be only work required for preliminary examinations. The moral that I wish to draw from the fable of Æsop for my present purpose is this: In all your work have a theory and believe in it, let it be your own if possible now in the creative and inventive period of your life; test it, not by the opinions of others or by their knowledge, but by your own observation and your own experience. No matter if you have later to reject it. Work uninspired by an idea is as aimless as a life uninspired by principles. The idea, especially if it is one's own idea, lends an interest and an excitement to scientific work, and, indeed, to all work, and, like the wishing cap of Fortunatus, transports its owner to a new world.

To Charles Darwin every little event, every trifling observation viewed by his thoughtful mind and in the light of his far-reaching theory must have been invested with an equal and an overwhelming interest; to his eyes every little detail must have had a significance which it possessed for no other. Let me remark in passing that Francis Darwin, in his introduction to the recently discovered sketch of the "Origin of Species" written in 1842, shows good reason to believe that the theory was budding in his father's mind when he was only 23 years old. Newton was only 24 when his conception of universal gravitation first found expression. Pasteur was about the same age when his mind was occupied with the theory of the relation between the disymmetry of crystals and the processes of life. Young had developed his theory of the interference of light at the age of 27. Galileo made his great discovery when he was 19. By many other examples I could justify my suggestion that the original idea or its germ in scientific thought, as in other subjects, is to be found in this productive period of early manhood. This is why I urge you to make and test your theories now and to turn a deaf ear to those who say that you should not begin to theorise until you have acquired knowledge and experience. Surely knowledge and experience are of use for the testing of theories and not for the making of them.

Let it be understood that I find no fault with the industrious accumulation of facts, with the patient study of details, at any or every period of a career. Did not Darwin himself supply the best possible illustration of this feature of the best scientific work? I would only ask you to remember that it was the theory which made those facts and details the most interesting things in the world to him, and it was because his course was illuminated by the guiding light of a theory that it led to such remarkable results. For this it was by no means necessary that the theory should be a right one. In his autobiography, after saying that from early youth he always had the strongest desire to group facts under some general laws, he says: "I have steadily endeavoured to keep my mind free to give up any hypothesis, however much beloved (and I cannot resist forming one on every subject), as soon as facts are shown to be opposed to it. With the exception of the Coral Reefs, I cannot remember a single first-formed hypothesis which had not, after a time, to be given up or greatly modified." There is to many, if not to most, minds a peculiar pleasure in the mere amassing of facts or the mere acquisition of knowledge, but this is not the pleasure of higher scientific work; it may lead to a species of intellectual miserhood, and corresponds to the acquisitive instinct of a man who is a mere collector and whose pleasure is only in the possession of rare things and not in their use. It is sad to think that, whereas the collector of art or other treasures may perform a very useful function in the world by bringing together objects that would otherwise have been scattered or lost, the knowledge which the intellectual miser has collected dies with him and cannot even be bequeathed.

Again, there is a certain pleasure in the making of observation—in the mere exercise of the faculties involved in the process. It is delightful to contemplate lazily the

breakers rolling in upon a sea beach; but let yourself begin to wonder whether the belief of the Greeks that the τρικυμία or every third wave is the largest, or that of the Romans that they recur at the *fluctus decumanus* or tenth, is the more true, and you will find yourself looking at them with closer attention and a new interest. Even so is there an added interest and an increased pleasure in any observation which is made not aimlessly but in the light of a theory. If you analyse the feeling I think you will find that it is due to the expectation; it is part of our sporting instinct, and is the same spirit which makes it interesting to watch the movements of the bird or beast or fish that we are hunting or to follow the varying fortunes of a game. The expectation is aroused and the attention is arrested. This sort of excitement is quite different from that of a very young child whose interest in everything is intense, but is aroused by one thing after another and not by the expectation of what is to come; his mind is not yet capable of that imaginative and intellectual effort. It is curious to watch a very small boy even learning to play cricket or football; he cannot keep up his interest, but gets distracted by other things that catch his eye; "atque animum nunc huc celerem nunc dividit illuc." It is a mistake to expect children of this age to find much interest in a theory or in first principles, as some educational authorities would wish. But it is just as much a mistake to expect university students to devote their thought and their energies to the provident but blind acquisition of knowledge for some unknown future use as the ant stores its provender for the winter. The real but aimless delight which is excited by the mere exercise of our faculties, whether in learning or in observation, is a sort of sensual pleasure, and I would contend that it is a very different thing from the intellectual pleasure of scientific discovery; and when the child's power of acquisition, which is due to the pleasing exercise of the marvellous memory that all children possess, is beginning to fail it is time that the higher intellectual powers should be developed.

You will understand, I hope, what I am driving at: it is, that after school days are over all the preparatory and educational work that we have to do should be taught and learnt in a new spirit, no longer as an exercise or a preparation, but as real active, living research guided by the light of theory and inspired with the hope of discovery. A great fault of the unsatisfactory, though necessary, examination system is that it tests the quality of memory unduly and can never do full justice to the other mental faculties, and so it inevitably encourages an uninteresting and uninspiring style of study. Surely to no one is the encouragement of the research spirit more necessary than to the medical student, who has to learn so many subjects and to pass so many examinations before he can get to the work of his life.

There are two ways of carrying on work in the spirit of research—one of them is to work in the constant and lively expectation of something new turning up without knowing what it will be, or rather in the confident knowledge that if we keep our eyes open we shall most certainly see something new in the most ordinary and oft-repeated laboratory exercises. And the other is to be always working in the light of a theory—in other words, to know what we expect and to test this expectation. The first method cultivates alertness of interest and observation. The second method is best suited for special and more advanced studies: it cultivates intelligent thought. And that is why I counsel medical students in all their work to adopt a theory and stick to it as long as they are able, and then, if necessary, to invent a new one, to work in the spirit of investigation in the light of their theories.

If you say that it is not so easy to invent a theory until you have mastered a subject, I would reply that every time you try to understand an experiment, an observation, indeed anything before it has been explained to you, so often are you obliged to invent an explanation or theory of your own: and that is all that I ask, neither leave the facts without an explanation of your own nor accept the explanation of another without thinking what it means. Perhaps if I were to counsel the other method and beg you to be always trying new things on the chance of a discovery and without understanding them I should lay myself open to the charge of advising medical students to experiment on their patients, a charge which is already made by the suspicious minds of too many ignorant persons. Let me, however, guard myself by reminding you that I am speaking, not of clinical practice, of which I know nothing, but of the learning and teaching of science, of which I have some general knowledge.

Often must the medical student ask himself with a groan why he is expected to devote so much time to chemistry and physics and mathematics, which will apparently be useless to him in the future. If he really has this feeling I think it is due, not only to the narrowness of his own view, but partly, perhaps, to the very zeal and excellence of the teachers of these preliminary subjects. A mathematician teaches his subject as though all his pupils wished to become mathematicians, a chemist as though they wished to become chemists, and so on; and the text-books are written in the same spirit. So that the medical student runs, perhaps, a greater risk than any other of having his interest deadened by these preliminary subjects at the very time when his mind is most on the alert for new ideas. And yet, of course, these preparatory subjects are absolutely necessary; whether they are also interesting is, I think, entirely a question of how they are regarded. If properly taught and properly studied they ought to be not chemistry or physics or mathematics, but the chemical or physical or mathematical aspects of his own well-loved medical science; illustrations of the principles of that science, the materials and the tools by which its theories can be tested. Every student is most keen upon some special subject. Well, so far is science from being separated into water-tight compartments that I believe there is no branch of science which cannot be taught to him and made interesting to him through his special subject.

It would, no doubt, be very satisfactory if every medical man could have been first a mathematician, then a physicist, then a chemist, and so on through the different stages until he finally became a doctor. But life is not long enough for this process, and the minds of ordinary men are not able to contain so much knowledge. Helmholtz, who almost alone among men possessed the necessary mental powers, curiously pursued the opposite course, and, having begun as a military surgeon and then teacher of anatomy, became successively professor of pathology, anatomy, physiology, and physics. But his career really illustrates what I have been saying, for through his early interest in physiology he was led to make himself the first physicist in Europe, because you cannot be a first-rate physiologist without being a physicist; and on the way he made himself one of the first mathematicians in Europe, because you cannot be a first-rate physicist without being a mathematician. When he was asked to take up the Chair of Physics and Mathematics in Bonn he replied: "In lectures on mathematical physics I should treat mathematics as the means and not as the end. Wherever possible I should include the physiology of the eye and ear." Later in life he said: "I have always been aware, and have often said expressly, that I owe much to the study of medicine even in regard to my later career as a physicist. It gave me a much wider knowledge of Nature than I could otherwise have obtained from studies limited to inorganic nature and to mathematics: and the grave responsibilities that devolve upon the physician to ensure the success of his professional treatment accustomed me at an earlier period to strive after an exact knowledge of the actual facts and their consequence." Although we are not likely in the course of many generations to encounter another Helmholtz, we may at any rate remember from his example that there is no need to cut up the sciences into isolated compartments. Indeed, when you begin to reflect upon any theory, or law of Nature, or general principle, you at once cross the boundaries between the sciences.

If you read the history of the great discoverers, or of those who have made any successful advance in science, you will find that this is the spirit by which they were animated in their student days—the determination to understand what they learnt by getting a grasp of general principles, to put an idea of their own into it, and so to get something new out of it. Herein is the great charm of scientific work: in every observation or experiment, timeworn exercise though it may be, there is something new to be seen, some discovery to be made by those who have eyes to see it, and an idea to guide them. To such a person they can never be mere exercises, they are a field of unknown possibilities. I suppose there is no science in which these possibilities are more abundant than in yours; so, in spite of my ignorance of the principles of medicine, I have no hesitation in asserting again that the student who can work, however humbly, in the spirit which animated Darwin in

his young days, is certain to find an intellectual interest that cannot otherwise be acquired, and is certain to be rewarded by some advance or discovery, some new fact, or some new thought, that will be a full compensation for any labour that he may have incurred.

CHARING CROSS HOSPITAL MEDICAL SCHOOL.

INAUGURAL ADDRESS BY SIR T. CLIFFORD ALLBUTT, K.C.B., M.D., F.R.C.P. LOND., ETC., REGIUS PROFESSOR OF PHYSIC IN THE UNIVERSITY OF CAMBRIDGE.

AFTER presenting the scholarships, medals, prizes, and certificates to the successful students Sir Clifford Allbutt addressed the students. He discussed two topics—the importance of athletic games in the formation of character and the advantages of anatomy as a disciplinary study. He said it always gave him great pleasure to be present at a prize-giving ceremony. As regarded students who had won prizes he did not consider that their success would do them much harm, while those who had lost would get great benefit, though this benefit might be an indirect one. In life we all lost many prizes which we much desired, and it was well that no man should enter the battle-field of life without a little experience of disappointments. Men were very frequently apt to think that they had been overlooked when they failed to obtain some coveted appointment, and were sometimes inclined to believe that they could fulfil that appointment better than the man to whom it had fallen. We should understand that throughout the whole of life we must be prepared to receive set-backs, and by learning that lesson those who failed to get a prize in their student days might reap a greater benefit than those who won the prizes. On such occasions as the present, although there must be a great many men who were disappointed, there was one very striking feature in all British schools—namely, the entire absence of the very slightest shade of jealousy. It was very interesting to notice the cordial way in which those who were unsuccessful gladly and even enthusiastically welcomed the success of their comrades, and it was a pleasant fact that the enthusiasm even increased when the same student received more than one distinction. If the disappointment which resulted from the unsuccessful effort to win a prize was the best possible preparation for entry into life, yet the disappointment must be taken in a buoyant way and without the smallest touch of jealousy. This characteristic was the result very largely of our British games. He was not one of those who joined in the outcry against athletic games, for they engendered the virtues for which he was contending. By such games we learned the proper spirit in which to take little rebuffs and pains, and to subordinate our own opinions to the ruling of a captain, and to obey orders without hesitation and without recrimination. All these "drills" were exceedingly valuable, and it would be a very great misfortune if games fell out of fashion, or if, on the other hand, we paid other people to play our games for us. By means of games the education of character should go hand in hand with other studies. He noticed that the men who won prizes in school were very often the leaders in the playing fields. By the practice of games in a way which no gymnastics could supply we learnt to take the ups and downs and the chastisements of daily life. For life was a game, and it was in his student days that a man learned to play that game also properly. Even in games there was a great deal of drudgery, and we must not suppose that in the higher game of life or in school drudgery would have no place. Some teachers thought that it was possible for students to learn without drudgery. In modern education there was a tendency to represent education too pleasantly. Although it was possible to make the learning of some branches of science easy and even amusing, there were stages of learning which required much drudgery and a considerable amount of self-control. Many students came up to the universities who, although clever in many directions, had not learned to drudge, and were consequently without the capacity for precise study which the acquisition of true knowledge required. Recently the subject of anatomy had been much discussed as part of that great question of the curriculum of the medical student. The question of the curriculum was, indeed, a most difficult one to adjust. Almost every term he had complaints from specialists that a man had passed through the university who was unable, for example, to observe satisfactorily the interior of a patient's nose. Yet, important as were all branches of medicine, he did not think that more could be got into the curriculum than it contained at present. Indeed, it astonished him that students were able to acquire the pile of knowledge which they seemed to possess in the five years of their study. And many who realised this heavy pressure on the curriculum wished to soften down the anatomy. What was the use, they said, of learning minute topographical details which would afterwards be of no practical service? His answer was that anatomy was, for its own sake, a disciplinary study of the utmost possible value. He knew of no study which forced upon the student the habit of close observation and the accurate representation of his subject as did anatomy. Even of graduates too many did not know what absolute precision meant. It was only after one or two subjects had been learnt profoundly that for breadth of view some other subjects might be learned more cursorily. Anatomy should be one of those subjects. The education of the physician was unique. No other came up to its standard of excellence. The physician was educated on a scientific basis, but his vocation afterwards involved large and wide moral issues as important to the patient as to the physician himself. All the new social problems were medical questions. He need not speak of them in detail, but did the House of Commons know what it was doing when it passed the law about the inspection of school children? Not in the least. But it had made one of the greatest steps towards social amelioration that had been made of recent years. The naval and military services of the country and the law were now organised on a great scale. The medical profession had to begin its public organisation. From being a private service it had now to become the great organ of growth in the State. Before very long the medical profession must be endowed with a ministry; it must have a hierarchy; it must have a means of expression and a defined responsibility before the public. "Make use of your time," Sir Clifford Allbutt concluded, "to take up the task before you."

UNIVERSITY OF BRISTOL.

INTRODUCTORY ADDRESS BY SIR ISAMBARD OWEN, M.A., M.D. CANTAB., F.R.C.P. LOND., VICE-CHANCELLOR OF THE UNIVERSITY.

THE first session of the University opened on Thursday, Sept. 30th, when the inaugural address was delivered by the newly appointed Vice-Chancellor, Sir Isambard Owen. The large hall of the University was packed, many persons being obliged to stand. The chair was taken by Mr. P. J. Wasley, and there were also on the platform the Lord Mayor, the Sheriff, the Bishop of Bristol, Professor Lloyd Morgan (the ex-Vice-Chancellor), the Deans of Faculty, the Senate and Boards of Faculty, and certain members of the Council. Sir Isambard Owen, who was greeted with loud cheering on rising to give his address, congratulated Bristol on its accession to the ranks of the University cities. All honour, he said, to those who had toiled for this end, to those wealthy citizens who had made it possible, and to the corporation of Bristol whose foresight showed them what must eventually make for the welfare of the city. The nineteenth century was marked by a world-wide movement forward in higher education, which had brought the universities of both continents to a much fuller development than a hundred years ago. What was the significance of the modern university? The speaker answered his question by referring to the history and evolution of the university movement. It originated in the latter part of the twelfth century, in Paris particularly, where teachers and scholars of all nationalities resorted for the study of all branches of knowledge, and bound themselves together by mutual oath into a corporation comparable to the craftsmen's guilds of the same period. This compact corporation was not formed immediately, but by the aggregation of smaller corporations representing the various faculties; the Faculty of Arts contained several separate bodies or "nationalities" within itself which at first maintained an independent existence. The very word "university" was mediæval Latin for a corporation, and was equally applied in its earliest meaning to a barbers' guild. The teachers who constituted the corporation reserved the right of admitting others to the privileges of membership; those who were admitted were known in some universities as masters, in others as doctors, in others, again, as professors. These titles, each of which now has its

particular meaning, were once interchangeable and expressed the same idea with a variation of local colouring. The bachelor of the ancient university was not a full member but a kind of pupil-teacher. The object of such a corporation was not primarily the advancement of learning but the protection of the privilege of teaching. It came to pass, however, that those who were so imbued with the love of knowledge as to desire to teach it were impelled by their enthusiasm to labour for its advancement; and this, said the speaker, was an early proof of the fact that as a general rule the university was the centre of research as well as of teaching. Those who are keen enough to make good teachers are sure to be investigators. The same principle is to be seen to-day in the universities of America, where success is measured by the number of students who remain to continue their studies after graduation. Knowledge gained under such a system is living and not dead; too great an insistence on the examination system was apt to lead to a mere aggregation of dead knowledge. The speaker next attended to the matter of public control. Even in the University of Paris public control was provided for by giving the Chancellor, an ecclesiastical authority, the right to license teachers, a right exercised in conjunction with the University itself. This outside authority has been constitutionalised in modern universities, such as Bristol. The Chancellor's supreme power acts through the medium of court and council. Alluding to the matter of degrees, Sir Isambard Owen inveighed against the notion that the granting of degrees was the sole end and aim of a University, remarking that in Germany only a minority of students proceed to degrees, a remark the significance of which was appreciated by the audience with applause. On the other hand, the type of education which fits a student to become a wage-earner was a necessary part of the university and must not be despised. "I cannot close my address," said the speaker, "without saying something about the democratic character of all mediæval universities." In such class distinctions were absolutely non-existent, owing to the predominance of the ecclesiastical over the feudal influence. The church sought for the best brains and sought for them in all classes. He saw with delight that the corporation of Bristol had devoted a large share of its university contributions to such ends by means of scholarships. Among all the types of fight which formed the sport of the mediæval universities he had never read of one between rich and poor. "All seemed to recognise the solidarity of their interests and the common brotherhood of the students."

UNIVERSITY COLLEGE HOSPITAL MEDICAL SCHOOL.

INTRODUCTORY ADDRESS BY SIR JOHN TWEEDY, LL.D., F.R.C.S. ENG., EMERITUS PROFESSOR OF OPHTHALMIC MEDICINE AND SURGERY IN UNIVERSITY COLLEGE, LONDON.

AFTER a sympathetic reference to the loss sustained by the school in the recent death of Dr. H. Radcliffe Crocker, Sir JOHN TWEEDY congratulated the prize-winners, reminding them that character as well as cleverness, and wisdom as well as knowledge, were necessary elements of success. The modern medical curriculum was such that conspicuous inaptitude for practical art was scarcely possible to the qualified practitioner. This was not always the case, as was instanced by Arnald of Villanova, one of the chief medical luminaries of the thirteenth century, who related that he knew an excellent professor of natural science learned in medical theory who could not treat the simplest ailment. This was an extreme type which was now extinct. As the antithesis of the learned but inexpert man there was in all professions the so-called "practical man," whose merits were generally overrated in popular estimation and whose lack of theoretical knowledge was often imputed to him for righteousness. Nor could it be denied that not infrequently he did attain a certain level of success, but he had narrow limitations. He dealt in particulars, was often quick to observe similarities, and in the treatment of disease concerned himself with symptoms without troubling to investigate the physical conditions upon which those symptoms might depend. Science arose from the discovery of identity or unity amid diversity of manifestation, and it was precisely here that the practical man so often failed. He appreciated agreements and similarities, but failed to discriminate differences. Such men were not altogether without illumination. Sir John Tweedy proceeded to welcome the newcomers to the study of medicine and to congratulate them on their choice of a career. He maintained that there was no secular calling so philanthropic in its aim, so refining in its influence, and so beneficent in its operation as the practice of medicine. Like mercy, it was twice blessed: it blessed both patient and practitioner. Medicine was only worthily served when it was practised as a cult, in the devout spirit of worship. It must be served loyally and for itself. Sir John Tweedy continued: "Those who are now beginning medical study may, at the outset, be perplexed and discouraged by the new method of study and by the new order of ideas to which they are introduced. Heretofore the education of the student has been chiefly literary, based upon pedagogic authority and the dictatorship of books. Henceforth both the character and method of study will be altered. The influence of authority will still obtain; much knowledge must be taken on trust, but it is a critical trust. Whatever is taught here is based upon a knowledge which may have been the accumulation of centuries, or it may be knowledge recently acquired, but it is knowledge which in due time and place is capable of verification and demonstration. While this knowledge is based upon authority, it is the authority of persons who have examined it with care and attention and who have been competent to form a sound opinion upon it. In later life most of us, as Cornewall Lewis has remarked in his Essay on Authority, must accept much of our knowledge on the trust of *our own authority*. We have gone through a process of thought and investigation and have arrived at a given conclusion, but the reasons of that conclusion have passed out of memory. We hold these opinions rather upon the recollection of having once ascertained them to be well-grounded than from a clear present perception of these grounds. If this were not so we should, as Locke observes, be perpetually floating about in doubt and be at the mercy of those who have a readier or more retentive memory, or who have happened to master the arguments on one side of the question only. The growth of medical knowledge has been slow and subject to cyclical variations, sometimes to retrogression, sometimes almost to eclipse. But it *has* grown, 'creeping on from point to point.' The history of medicine furnishes many illustrations of this. In human anatomy, for example, it would at first sight seem to be easy, with due diligence, to ascertain and correctly describe the structure of the human frame, but it took many centuries of practical observation to reach even an approximate degree of accuracy. Aristotle, Hippocrates, Praxagorus, and other physicians of the Hellenic and the Alexandrian schools, studied anatomy, and yet the records of their observations contain many errors both of observation and of reasoning. Even Galen, who was considered the infallible oracle for fourteen centuries and who was the first to seriously study the science of anatomy and made many discoveries therein, also promulgated many errors. And notwithstanding the impulse which Thaddeus and Mundinus gave to the study of anatomy at the school of Bologna in the thirteenth century the authority of Galen was so firmly established that when Vesalius in the middle of the sixteenth century published his famous work on Human Anatomy in which he corrected many of Galen's errors, there were not wanting anatomists who impeached the accuracy of Vesalius, or when this was no longer possible affirmed that the human organisation had undergone structural change since Galen's time. Now there is not a first year's student who will not be able daily to verify every statement made by his teacher or contained in his text-book. The progress of physiology has been even slower than that of anatomy. Indeed, scientific physiology is almost entirely the work of our own time. 40 years ago physiology was taught in University College by the greatest exponent of the day, I mean the illustrious Sharpey, but the physiology which he taught was almost entirely didactic and expository. There was practically no experimentation and scarcely any attempt at practical demonstration. Now physiology is eminently experimental, and the splendid position which it has attained amongst the natural sciences is the result of the employment of the experimental method. The course of medical education is progressive in complexity. In the earlier studies the method is authoritative and demonstrative, but in the final studies of medicine and surgery the method is more conjectural and

ratiocinative. Here exact observation, well-trained senses, and correct reasoning are the critical apparatus required. The problems to be solved are more complex and more obscure than those of anatomy and physiology. The difficulties of investigation are greater; the phenomena to be observed more difficult of interpretation, and the means of verification are fewer. In clinical medicine it is rarely possible to conduct an exact experimental inquiry, for we can seldom isolate the phenomenon under observation by an artificial arrangement of circumstances. As Mill has pointed out, there is this essential difference between Observation and Experiment: in observation we *find* our instance in Nature; in experiment we *make it* by an artificial arrangement of circumstances. Hence the growth of medical knowledge has been slow and halting. Centuries of observation by experienced workers have been needed to raise practical medicine to its present high level. But these observations have for the most part only improved the art of medicine and have done comparatively little for the advancement of its science. The science of medicine has been advanced mainly by the researches of those who have not been directly engaged in the treatment of disease. When new knowledge has been discovered by these means it has been received by competent judges, and by the influence of their authority it has been accredited and diffused. Failure to appreciate the difference between the dissemination of knowledge and the advance of knowledge has given rise to much confusion of thought and not a little waste of endeavour. Perhaps the crudest manifestation of this confusion is the belief, real or feigned, by some persons that inquisitorial experiments are performed in hospitals on men, or on animals, or both. Less crude—nay, even creditable in a sense—is the notion that by establishing sanatoria or endowing special hospitals for the treatment of particular classes of general diseases, it is possible to solve the problem of the nature and origin of these diseases and to hasten the discovery of the means of prevention and cure. Logically, this assumption is false; economically, it is wasteful. The great desideratum of our day is adequate endowment of biological and pathological research as the surest and most humane way of discovering the nature and cause of disease and the means of its prevention. Clinical observation only deals with disease when and as it manifests itself in man and animals; it throws but little light upon the causes of disease or upon the intimate processes which constitute the pathological state. Supremely useful as hospitals are for the purpose of treating the sick by the help of the best skill and knowledge of the time, and as schools for the training of successive generations of medical practitioners for the service of the community, it is nevertheless true that most of the capital discoveries of scientific medicine have been made outside hospitals and very often apart from clinical observation altogether. Among the most remarkable of these discoveries I may mention those relating to malaria, Malta fever, yellow fever, and I might add other diseases, which have baffled the best clinicians for centuries. In surgery, too, it may be said that the scientific basis of the modern aseptic method has been established not by clinical observation but by experimental research."

Sir John Tweedy proceeded to illustrate this thesis by recounting the history of the use of the ligature for wounded arteries, and in this connexion he made an interesting quotation from the *Apologia* of Dr. J. F. D. Jones defending the experiments which he had made upon horses, and which resulted in the adoption of the modern method. The future practitioners of medicine would have to form an opinion on the justifiability of experiments upon living animals for the purposes of scientific research, and if they were satisfied that these experiments were justifiable with proper safeguards they would be called upon to defend the practice and to justify their opinion. To do this intelligently it was necessary not only that they should be acquainted with the arguments for the defence but that they should also make themselves masters of the arguments on the other side. It was not enough to ascribe the opposition of the public to ignorance or fanaticism. There might be either or both, but objection could be only overcome and acquiescence gained by enlightening and educating the public mind. It should be remembered that the mass of a nation must be convinced of the value of a general principle which is being carried out, else what we might judge the most salutary change would be ineffectual. Ritchie, in discussing the Rights of Minorities, had remarked that on matters of public health only the scientific expert could, in the first instance, form a sound judgment. In democratic societies there was often a distrust of scientific opinion. The remedy was not despotism but public enlightenment, and the scientific specialist was bound therefore by patriotism, as well as in the interests of his own science, to lend what aid he could to the popularisation of science from which he was too apt to recoil. It was the sole antidote to ignorance or pseudo-science. Those whom science neglected, fanaticism and quackery would claim for their own.

MIDDLESEX HOSPITAL.

INTRODUCTORY ADDRESS ON "WALKING THE HOSPITAL," DELIVERED BY J. STRICKLAND GOODALL, M.B. LOND., LECTURER ON PHYSIOLOGY AT, AND SUB-DEAN OF, THE HOSPITAL.

AFTER remarking that an opening address at least had an educational value for its giver, and welcoming Lieutenant Shackleton as the prize-giver, Dr. Goodall welcomed the new students in terms of congratulation on their choice of the most interesting and least monotonous occupation in the world for their means of livelihood, and gave some excellent advice concerning the best means of preparation for its pursuit. After congratulating Sir Henry Morris and Professor Arthur Robinson on the distinctions conferred upon them during the past year, he opened his remarks on "Walking the Hospital" in the following words:—

"Doctors, like poets, are, I believe, born, not made, but it is perhaps just as well for the general public that, unlike the latter, they *have* to undergo a definite course of study which is usually known by the laity as 'walking the hospital,' a mysterious and lengthy performance which (also according to the laity) lasts a varying number of years, usually costs the parents an indefinite amount of money, and is *supposed* to be associated with much experimentation on the hapless poor. This afternoon I propose to give you a brief general outline of what 'walking the hospital' really is. At the present time under favourable conditions the process of walking the hospital takes about five years, this being the minimum time allowed by law. It has, I believe, been known to take longer, the long distance (time) record at present being, I understand, held by a gentleman who has up to now devoted 22 years of his life to it without either tiring of the amusement, ruining his health from over-study or satisfying the examiners. In the case of the London University medical curriculum five and a half years is the minimum time allowed, the extra half year having recently been added, possibly to enable the teachers and the students to master the regulations."

Dr. Goodall proceeded to describe the different stages of the medical curriculum, dwelling on the importance of each of its subjects to the education of the medical practitioner. After discussing shortly the preliminary sciences he spoke of anatomy, of which he said: "The importance of a knowledge of this science is readily appreciated by the student, for he at once sees the obvious impossibility, without it, of performing (with any degree of safety to the patient) any surgical operation or of conducting satisfactorily any medical or surgical examination. In fact, I once heard surgery defined (I must admit by an anatomist) as anatomy *plus* common sense."

Passing on to consider physiology, Dr. Goodall described that science as the key to anatomy, and the basis of pathology and of rational treatment in medicine. He regretted that it was, as he believed, less popular with the average student than anatomy, a fact which he attributed to two causes. Firstly, because in anatomy all the practical work is carried out by the student himself on the human body, and he consequently realises from the first that he is learning something which will be of immediate use to him in his professional work; while in physiology so many of the observations are of necessity carried out on the lower animals, and so much of the subject is theoretical or very difficult of demonstration, that the student is apt to overlook the direct practical bearing of such experiments on man. Secondly, because in the London schools, at any rate, anatomy was, as a rule, so much better taught than physiology. In this connexion Dr. Goodall said "that if all teachers of physiology in London hospitals would constantly bear in mind that they are teaching physiology to men who are going to be doctors,

not physiologists, and if they had the strength of mind to eschew those more purely academic parts of the subject which have no practical bearing on medicine, and finally if they had sufficient moral courage and self-denial to abandon for ever Pflüger's law, electrotonus, and the veratrine curve, and to substitute for them classes of applied human physiology in which the student was properly taught the systematic application of physiological methods for the investigation of the functions of the different organs and systems in the human body, then we should, I believe, have physiology occupying its proper position in the systematic practice of medicine and of treatment and enjoying a popularity with the student and practitioner which it never has enjoyed, and never will enjoy, under existing conditions. For what could be *less* useful to the average medical man than a knowledge of the veratrine curve or Pflüger's law, or what *more* useful than a really practical knowledge of the physiology of the *normal* human pulse. Yet I do not hesitate to say that the former have been asked twenty times in practical physiological examinations to the latter's once. The great danger of specialisation in any subject is, I take it, loss of judgment and perspective in relation to other subjects, and there has perhaps in the past been rather too much specialisation in anatomy and physiology. An up-to-date knowledge of surgery is, I venture to think, essential for the teacher of anatomy, as also is an up-to-date knowledge of medicine to the teacher of physiology in medical schools if they are to retain their perspective and judgment and teach *useful* anatomy or useful physiology to *medical* students. And here, lest some of you might be led to think that physiology has done little for medical progress, I would remind you of some of the more direct contributions of the physiologist to practical medicine. Adrenalin, a valuable *natural* hæmostatic now in daily universal use, is essentially the outcome of physiological research. The treatment of myxœdema and cretinism by thyroid extract, the nerve paths in the central nervous system, the influence of gravity on the circulation, the safe limits of chloroform anæsthesia, the nature of caisson disease, mountain and balloon sickness, are all direct offerings of the physiologist to the physician; and I would mention Pawlow's epoch-marking work on digestion, for I doubt if there is any book written on medical treatment proper which is so pregnant in suggestion of rational treatment as is this, which is usually regarded as an almost *purely physiological* work. *Researchers* in physiology owe no debt to practical medicine, but *teachers* of physiology in medical schools do owe a great debt to practitioners of medicine."

Dr. Goodall then described the many studies and activities comprised in the clinical portion of the medical curriculum. He dwelt upon the importance of a working knowledge of physiology for their proper pursuit, and also of a study of the individual temperaments and peculiarities of different persons placed under similar conditions. "The importance of a psychic factor," he said, "is well recognised in ordinary physiological processes; for instance, with a psychic stimulus (appetite) one can digest four times as much food in a given time as without it. While as regards disease, I believe I am not wrong in saying that the psychic factor is, from the patient's point of view, the worst in *every case*. The truth of this remark is, I think, quite obvious in the case of such gross diseases as, say, cancer or leprosy, where the knowledge that the condition is more or less incurable and often loathsome to others is, I am sure, nine times out of ten, far more soul-racking to the patient and cause him (or her) far more suffering than the actual disease itself. While even in such a comparatively simple condition as a broken leg, more often than not, the mental state induced by the enforced rest and absence from business is a cause of far greater suffering to the patient than the actual pain or discomfort caused by the wound or injury. If this is correct, surely it is a factor which must be recognised and treated just as much as the actual pathological condition. The danger of this belief lies in the fact that one may exaggerate its importance and so over-treat it to the neglect of the actual physical factor. *Ignore* the psychic factor and your treatment may, in the case of a sensitive patient, amount to actual brutality, for I would here remind you that no pain is so easy to provoke as mental pain and none so difficult to alleviate. *Over-treat* the psychic factor on the other hand and you yourself become a quack and run the risk of making your patient a chronic neurasthenic!"

Dr. Goodall proceeded to point out the advantages of watching the methods and manners of some of the most successful and eminent men in the medical profession enjoyed by students during their hospital education, and showed the enormous importance of fulfilling thoroughly the various clinical offices in the wards and out-patient departments. He described the advantages of the social side of the student's life, said a word on behalf of the Officers' Training Corps, and concluded with these words: "Finally, gentlemen, it is during your hospital career that you will make friendships that will in many cases endure as long as you endure. Real friendships, I believe, are only made while young, and can only exist between persons of like tastes and ambitions, and it is here during your life in the hospital that you will be brought in contact with men of like age and similar tastes and ambitions to your own, for I think it is Sallust who says 'idem velle atque idem nolle, ea demum firma amicitia est,' which perhaps I might be allowed to translate for you as 'to have the same desires, the same aversions, that, and that alone is *stable friendship!*' In conclusion, if I might offer one line of advice it would be—Don't make friends of your patients or patients of your friends."

A Lecture
ON
THE CLINICAL SIGNIFICANCE OF ALBUMINURIA.

Delivered at King's College Hospital

BY NESTOR TIRARD, M.D. LOND., F.R.C.P. LOND.,

SENIOR PHYSICIAN TO KING'S COLLEGE HOSPITAL; PROFESSOR OF MEDICINE, KING'S COLLEGE.

GENTLEMEN,—The chief difficulty connected with cases of albuminuria is not concerned with the detection of minute traces, but with the determination of the significance of the albuminuria in the individual case. It is a somewhat curious feature that in endeavouring to elucidate this question the amount of albumin that has been revealed by chemical processes is often a relatively minor consideration. Frequently when relatively large quantities are present a favourable opinion may ultimately be expressed, and conversely when only small traces are found and when at times the urine may give no decided reaction an unfavourable prognosis may be inevitable. The examiner for life assurance is, no doubt, right in deferring or refusing to accept at ordinary rates those individuals whose urine gives a reaction for albumin at the first examination, but this single observation will not justify rejection unless the presence of albumin is accompanied by numerous other indications of grave organic lesion. It is well known that the course generally adopted by medical officers of experience entails a second visit and a reference to the medical attendant of the proposed. The medical attendant is obviously more likely to be able to conduct the series of observations which may furnish data for a diagnosis, and he may already be in possession of information which has not been disclosed to the examiner of the assurance company.

These considerations, derived from actual practice of an important branch of medical work, suffice to support the comparatively small amount of information afforded by the mere presence of albumin in the urine. It is a signal of possible danger, it is a call for caution, it may be the first indication to point to the necessity of radical changes in the habits and occupation of the individual directly concerned, but it cannot alone warrant anything more than a bare statement of fact. It is only a starting point, comparable to a single observation of the temperature of the body or of the rapidity of the pulse; the significance must be sought from the consideration of numerous other factors, some connected with the extent and the frequency of the albuminuria, others with the general condition of the urine, such as the amount passed in 24 hours, the specific gravity and the colour, or the presence of other abnormal constituents, but in very many cases these data will be found to be supported or negatived by others relating to the

previous history, and by numerous factors obtained from a careful and detailed examination of other physiological systems.

One of the first elements to be considered is necessarily the occasion which has led to the examination of the urine and the detection of the albumin. When the condition has been ascertained in an individual who is applying for a life assurance policy, or for a certificate relating to his physical fitness to undertake some appointment, there will probably be no complaint of any symptom of weakness, and there may possibly be very little in the history to throw any light upon the cause of the albuminuria. The albumin may, indeed, come as a surprise at the end of an examination which has been otherwise satisfactory. These cases stand in an entirely separate category from that to which those patients belong who have some definite complaint for which they require the advice of a medical man, and accordingly come with perhaps a somewhat vague, or even misleading, account of symptoms. These, again, can be grouped apart from those in whom albuminuria is to be anticipated as a necessary consequence of the disease from which they are suffering.

These three groups of cases do not strictly conform to any definite classification of the causes or of the importance of albuminuria, but it may be well to bear them in mind as they must influence the spirit in which the question of elucidation is approached. Thus, for example, the type of symptomatic albuminuria so often met in various febrile conditions does not cause any immediate anxiety; it is noted as one of the many indications of the severity of the febrile state, and to this extent it has a certain importance. Febrile albuminuria, however, appears never to be associated with any grave interference with the actual work of the kidney, it is not an indication of the need of any special modification of treatment, and it is extremely doubtful whether it ever forms the starting point of chronic renal changes which will give trouble at a later period.

To illustrate this statement by a definite example, I may remind you of the frequency with which albumin is detected in the course of acute lobar pneumonia during the pre-critical stage; in this the symptom is an evidence of toxæmia, but the degree of toxæmia can be gauged by numerous other indications apart from an examination of the urine. Other symptoms are present from which the same inference can be deduced with comparative certainty; anxiety may be aroused by the condition of the pulse, by sleeplessness or delirium, by the rapidity of respiration, or by the degree of fever, without any reference to the albuminuria. If the patient passes the crisis safely the albumin speedily disappears, and it does not return.

Another example of symptomatic albuminuria is often shown in patients who are suffering from any disease involving retardation of the blood-flow in the renal capillaries, as with failure of compensation with heart disease, or with many chronic pulmonary conditions. Numerous patients with this symptomatic form of albuminuria have been under observation in the wards during the past few months, but in these cases, as in the febrile group, the albumin rarely causes anxiety. When the sequence of events is not clear, when there may be reason to suspect that the albumin has preceded the cardiac changes, the prognosis will be affected, but when there is little doubt that it is the consequence rather than the cause, the albuminuria is not considered to merit very much attention. After a spell of cold and foggy weather there are always several patients in my wards with severe bronchitis, associated with definite evidence of bronchial spasm, and in the majority of these patients albumin is found in the urine during the period of greatest pulmonary distress. As in pneumonia, no symptoms can be assigned to this change in the urine, and the treatment is entirely guided by the pulmonary condition. As this improves the albumin disappears, this change affording proof, if any were needed, of the purely symptomatic nature of the albuminuria. In some of these patients there has been a certain degree of dropsy of the lower limbs, but this has been associated with so much cyanosis that it has not served to obscure the diagnosis or to lead to modification of the treatment.

The detection of albumin in connexion with evidence of heart lesions often opens up a more difficult problem; it is not always easy to express an opinion as to the significance of the albumin without more evidence than is probably available from the notes of the present condition. The amount of urine passed in 24 hours, the specific gravity, the amount of albumin present on successive days, and numerous factors connected with the general condition of the patient will have to be considered before it is safe to hazard a provisional diagnosis. To enter into details upon these points would carry me far beyond the limits of the present lecture, so I must content myself with briefly reminding you of the frequency with which your attention has been directed to the information to be gained from the aspect of the patient, the presence or absence of the subconjunctival tear, the extent of the œdema, and the character of the pulse. Before leaving the consideration of these cases of albuminuria accompanying heart murmurs it is necessary to remind you that great care must be exercised in connexion with the position of the cardiac impulse; in many forms of heart disease the cardiac impulse is displaced outwards, and since a similar condition occurs with chronic forms of renal disease you must be on your guard against drawing an erroneous inference from this indication.

Symptomatic albuminuria is so often seen in our wards that it does not appear necessary for me to deal with it at greater length. Ward work, however, and even an extensive experience of the out-patient department, will scarcely prepare you for many of the difficulties to be encountered in after life, and it is on this account that I think it is desirable to furnish you with a few hints which may be helpful after you have left the hospital. Albuminuria has been aptly termed a silent symptom; it may be detected when there has been no marked evidence of trouble to attract attention, and let me remind you again that although it does not necessarily indicate a serious organic lesion, the presence of albumin should always call for careful and repeated observation.

An initial error against which I would warn you is the attempt to measure the importance of the albuminuria by the amount detected at any time; albuminuria can never be a negligible quantity; it always has a definite significance, but it is far from correct to attempt to estimate the importance in direct terms of the amount of albumin. It is quite true that when a large amount is being lost daily the nutrition of the individual will necessarily suffer, but it is not safe to infer that because only a small amount is occasionally detected therefore it is of relatively small importance. Some of the most serious forms of albuminuria are those in which the detection of albumin may at times be a matter of difficulty, and in this they agree with many of the milder forms of functional, cyclic, or orthostatic albuminuria. In practical work, therefore, it is essential that you should be prepared to differentiate these cases, and this can generally be effected with comparative ease if attention is not limited too exclusively to the condition of the urine. There are, of course, certain features of the urine which must be noted, and foremost amongst these is the specific gravity. Before attaching much importance to the specific gravity, it is necessary to know numerous factors connected with the specimen—e.g., the relation of the time it was passed to the ingestion of liquids, the permanent nature of a relatively high or low specific gravity, and the possibility of some disturbing factor, such as an attack of diarrhœa, recent violent exercise with consequent profuse perspiration, or even an excessive degree of nervousness at the mere fact of examination. To each and all of these disturbing influences due consideration must be paid, and from this brief summary you will readily infer that in insurance work, at least, where the proposer is seen under conditions which preclude a full knowledge of many of them, very little importance can be attached to an indication which, under other circumstances, is of supreme value.

The colour of the urine is to such a large extent dependent upon the degree of dilution, with which, of course, the specific gravity will also vary, that it is similarly also of very little assistance, though if we know that the urine is generally of a pale colour and the specific gravity is usually low, these facts will go far towards enabling a diagnosis to be made in a case in which a small amount of albumin has been found.

The presence of casts may be of material assistance, provided that too much importance is not attached to a few hyaline casts. Since the introduction of the custom of examining centrifugalised samples of urine which has been recently voided, there can be no doubt that hyaline casts are more frequently found. It must be remembered that such casts are likely to be present whenever albumin is found in acid urine, they will therefore merely be a further indication of albumin,

without affording much more than negative evidence. They may be present in any of the types of albuminuria which are not associated with definite structural renal changes. They may be present in the orthostatic forms of albuminuria, and they may also be found in connexion with some cardiac cases, though in the latter class they may be accompanied by blood casts or by free blood corpuscles. On the other hand, other forms of casts if present may afford very valuable information of true organic renal changes, especially of chronic tubal nephritis. To a far more limited degree they may also favour a diagnosis of chronic interstitial nephritis, since it must be remembered that in this condition both casts and albumin may occasionally be absent for long periods. With regard to casts, therefore, the utmost that can be said is that their presence may be very suggestive, but that it will generally be unsafe to lay much stress upon their absence as a proof of the non-existence of possibly serious structural renal changes.

In the course of the routine examination of the individual it is probable that alteration of the cardiac sounds and of the position of the cardiac impulse will already have been noted, but it is quite possible that prior to the detection of albumin they may have been assigned to some less serious cause. When dealing with those who have been long addicted to athletic exercises it is by no means uncommon to find some degree of cardiac hypertrophy and some accentuation of the force of the ventricular systole. These changes I have often found in rowing men, in those who have done long distance races, and in those who have exerted themselves with excessive cycle-riding, either in forcing the pace, in riding over-weighted machines, or in recklessly endeavouring to cope with hills. It must be remembered that such errors of judgment are most frequently, though not exclusively, limited to the period of adolescence, and that this is a time in which many types of albuminuria are likely to be detected. Incidentally, I would remind you that these conditions of overstrain may alone account for temporary albuminuria; this has been proved amongst rowing men at the Universities, and there appears very little room for doubt that it is true for all forms of violent muscular overstrain. The practical outcome, then, is that before attempting mentally to connect the cardiac changes with the albuminuria we must endeavour to determine whether they may not both be due to a common cause. Although this holds good when it is a young man who is being examined, the same degree of charity can rarely be conceded to a man of middle age in whom similar changes of the position of the cardiac impulse, and similar booming systolic sounds have been found at the apex. In this case it is highly probable that in addition to these changes there will be well-marked alterations in the sounds audible over the aortic area. The second sound is commonly sharp, clear, and ringing in character, and it is also probable that the diastolic sound may be reduplicated. This separation of the diastolic sound into its two constituents indicates an appreciable difference in the time of the closure of the aortic and the pulmonary valves respectively, which in turn is an evidence of an alteration in the normal relationship of the capacity of the two ventricles and also of the normal relation of the blood pressure in the aorta and the pulmonary artery.

In all probability before the examination of the urine the character of the pulse will also have received attention, and will perhaps have furnished some indications of value. A rapid pulse may rightly have been ascribed to nervousness under the ordeal of an examination upon which much may depend; comparatively little importance is generally attached to a mere increase in rate. More importance belongs to irregularity of rhythm, since although this may commonly be present with mitral lesions it is also frequently to be met with in chronic forms of albuminuria dependent upon structural lesions of renal tissue. There is no sequential association between functional or orthostatic albuminuria and an irregular or intermittent pulse. The two conditions may be found in the same patient, but some cause other than albuminuria must be sought to explain the abnormality of the pulse.

In the separation of functional from organic forms of albuminuria indications of rigidity of the wall of the artery are not of material help, inasmuch as they do not occur until comparatively late in life when there is little ground for suspecting a functional type of albuminuria. On the other hand, evidence of arteriosclerosis is extremely significant, and this may be estimated directly by the sense of resistance, by the sphygmomanometer, or by the sphygmograph. The first method is still largely used, though it requires considerable experience before it can be trusted to give much more than a rough indication, and there is always a fear of the introduction of the personal equation. The different forms of sphygmomanometer aim at replacing this personal factor by greater scientific accuracy, and in many cases the claim is fully justified. My experience has, however, led me to be somewhat cautious in accepting the results with implicit confidence; although usually trustworthy, the evidence afforded by the sphygmomanometer is from time to time distinctly at variance with the physical signs. In my hands the sphygmograph has given greater satisfaction as an evidence of high blood pressure, and therefore it has frequently been of material assistance in differentiating functional from organic types of albuminuria.

Comparatively recently the suggestion was made that the differentiation could be effected with ease by the administration of calcium lactate. This suggestion was based upon certain investigations which appeared conclusive, but in actual clinical work, both in hospital and in private, this simple method has not, so far as I have seen, equalled the expectations it aroused. It has been endorsed by some observers, but those who have found it successful are, I believe, far outnumbered by those who have been disappointed. Whether further experience will lead me to modify this opinion I cannot say, but I am convinced at present that it would be unwise to neglect the evidence afforded by the other observations, and to trust implicitly to a therapeutic experiment for the diagnosis.

Hitherto stress has been laid upon the different modes of conducting the examination when albumin has been unexpectedly discovered, but it must be remembered that often valuable indications are to be recognised before any systematic examination has been made. Thus due regard must be paid to the age of the person and to his appearance. Almost instinctively you will learn to recognise the pallor and the watery look of the eye of an individual who is suffering from chronic tubal nephritis, even when there is little or no œdema discoverable in any of the usual sites. Frequently also the aspect of the man with chronic interstitial nephritis is suggestive of antecedent gouty condition, or of chronic dyspeptic troubles, or in earlier stages in younger men the face may betray signs of a life that has been full of financial or other anxieties. Conversely, while many young men are devoid of any facial indication of orthostatic, cyclic, or functional albuminuria, you will not infrequently note an almost indefinable change of aspect which you will learn to associate with these conditions.

To summarise the conclusions, a large amount of albumin, without blood or pus, may generally be taken to indicate chronic tubal nephritis, and this can be confirmed by a high specific gravity, by microscopic examination, and by the appearance of the patient. A very small trace in an elderly or middle-aged man will probably indicate chronic interstitial nephritis; confirmatory evidence can be found in the aspect, the history, the pulse tension and tracing, the outward displacement of the cardiac impulse, the accentuation of the systolic apical sound, and the accentuation and reduplication of the second sound at the base of the heart. These indications may be further supported in some cases by the pale colour and low specific gravity of the urine; less frequently information may be gathered from the presence of casts and from their predominant characteristics. The absence of casts is not, however, to be regarded as an indication that the case is not one of chronic interstitial nephritis. In a young man a mere trace of albumin may be the only evidence of a functional albuminuria, and the diagnosis must then rest upon negative evidence to a large extent, one of the most important factors being the relatively high specific gravity, unless this has been influenced by nervousness or by the recent consumption of a large quantity of liquid. With the same limitations the deep colour of the urine will lend confirmatory evidence.

There are so many causes for great variations in the condition of the urine that stress cannot be laid upon the amount of albumin without paying due regard to most of the changes which have been touched upon in this lecture. After all, albumin is merely an indication of an abnormal condition, it is not a disease. Therefore, as with every other symptom,

by itself it affords no reasonable ground for a diagnosis Numerous other signs and symptoms must be carefully weighed, perhaps at short intervals, before it is justifiable to express more than a provisional diagnosis.

AN INVESTIGATION INTO THE ETIOLOGY OF ERYSIPELAS AND ALLIED INFECTIONS.

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THE present investigation was undertaken with a view to determining certain disputed points in the etiology of erysipelas and the allied inflammatory lesions, cellulitis and lymphangitis. Erysipelas is commonly defined as a "specific and contagious infective disease due to the development of the streptococcus erysipelatis of Fehleisen in the smaller lymphatics of the skin."[1] It has for long been a matter of dispute as to whether or not the streptococcus erysipelatis should rank as a specific organism, and it appears now to be generally taught that this streptococcus is in all probability identical with the streptococcus pyogenes, but in order to account for certain discrepancies it is described as "of a certain degree of virulence,"[2] yet the term streptococcus erysipelatis is still retained in the majority of descriptions of the disease. In addition to erysipelas proper a more extensive type of acute superficial inflammation is defined under the titles of "phlegmonous" and "cellulo-cutaneous erysipelas." In this variety certain clinical features are described by which it may be distinguished from erysipelas on the one hand and cellulitis on the other; it is stated to be doubtful whether or not it is contagious,[3] and it has been suggested to be the product of a mixed streptococcal infection, "the erysipelas organism growing in the skin and the streptococcus pyogenes in the deeper structures."[4] Two further conditions of acute superficial spreading inflammation with which erysipelas is liable to be confounded are those of cellulitis and of acute lymphangitis in its later stages. While the specific nature of erysipelas is widely recognised, it is allowed that a spreading inflammation of the subcutaneous tissues—or cellulitis—which presents distinctive clinical features, may be produced by a variety of organisms, and that in some of the more localised forms the staphylococcus pyogenes aureus is the causative agent.[5] Acute lymphangitis, in the same way, has no claim to be considered as a specific disease and neither this condition nor that of cellulitis is anywhere liable to "notification."

In considering the etiology of erysipelas it is necessary to determine the nature of the organism which causes the condition, and the relation which it bears, if any, to the organisms present in such allied inflammations as cellulitis and lymphangitis. Of recent years a considerable amount of work has been done upon the differentiation of the streptococci and their classification. Andrewes and Horder[6] have isolated a large number of streptococci from various sources and have been able to arrange them into a few fairly definite groups which depend for their differentiation mainly upon the reactions set up by the organisms in the carbohydrate media introduced by Gordon. The streptococci are thus found to fall into three main groups, representing three fairly constant varieties, which have been classed by Andrewes and Horder under the names of the streptococcus pyogenes, the streptococcus fæcalis, and the streptococcus salivarius, with its closely allied variant the streptococcus anginosus. In the same manner the pneumococci, while presenting many points of similarity with the streptococci, are found to form a distinctive group, possessing fairly constant reactions. In this investigation an attempt has been made to isolate the causative organism from cases of erysipelas, and of the similar acute spreading inflammations of the skin and subcutaneous tissues, and to subject them to all possible cultural tests, including Gordon's carbohydrate media, with the object of determining whether the causative organism of erysipelas is a constant one, and whether it presents any features by which it may be distinguished from the other pyogenic streptococci.

These questions are of some practical importance since the various surgical procedures which have been adopted in cases of erysipelas appear to have no recognisable influence in shortening the course of the disease and of recent years treatment by serum-therapy has been largely employed. The serum used has been derived from various sources. The so-called anti-erysipelas serum is usually derived from the serum of a horse which has been inoculated with a mixed culture of streptococci obtained from several cases of erysipelas; sometimes a streptococcus pyogenes serum is used, the horse in this case having been immunised by a pure culture of one or more strains of the streptococcus pyogenes; a "polyvalent" streptococcal serum is also employed and is obtained from various strains of streptococci chosen indiscriminately from different lesions. Uncertain as is the value of serum-therapy in erysipelas, it would obviously be of importance to ascertain if all cases of erysipelas are due to the same organism before drawing any conclusions as to the value of serum treatment in any particular series of cases.

In addition to the bacteriology of these infections certain points in their histology have been investigated when the necessary material has been available. The various cases were taken from the wards and out-patient department of St. Thomas's Hospital, and in each instance the source and mode of infection were investigated so far as it was possible. A review of all cases of erysipelas admitted to, or arising in, the hospital over a period of 12 years was also made in order to determine if cases of erysipelas, by spread of infection, gave rise to this disease only, and, conversely, if other septic conditions ever gave rise to erysipelas. The answer to these questions, upon which the specific character of erysipelas depends, determines the manner of dealing with these cases. Should erysipelas patients alone be isolated, or should all cases of streptococcus infections be placed together?

Technique.—In the erysipelas cases films were made and cultures taken from the exudation of the wound when this was available. The films were stained by Gram's method and the culture media employed were "lemco" broth and nasgar. In cases of mixed infection an isolated streptococcus colony was, when possible, inoculated on to a second nasgar tube and the subsequent growth transferred to the various media; isolation by plating on Petri dishes was usually avoided, since the colonies thus obtained frequently died out on being transferred to liquid media. The behaviour of the streptococci thus obtained upon agar and gelatin, in litmus milk, broth, neutral red broth under anaerobic conditions, and a large number of Gordon's carbohydrate media, was in each case fully investigated. In a certain number of instances, however, owing to the presence of other actively growing organisms, the nature of the streptococcus present could not be determined. In a number of cases in which blebs of considerable size were present, these were opened aseptically and several loopfuls of their contents smeared over a nasgar slope. In a few cases in which neither a discharging wound nor blebs were present the skin at the spreading edge of the rash was scarified with a sterile needle and cultures taken from the exuding serum. In some instances films made from the bleb contents or from the clear serum obtained on scarifying the skin were treated by Leishman's stain and a differential count was made of the cells present. In only one or two cases could portions of the skin be obtained for histological purposes. In the cellulitis and lymphangitis cases films and cultures were investigated in a similar way, and were obtained either from the original wound or from the pus evacuated at the time of operation. In several of the cellulitis cases small portions of the skin were removed during the operation for microscopy. In all about 60 cases were investigated, the majority of which were diagnosed as erysipelas; a few cases in which an operation was followed by a spreading erythema of doubtful nature are also included.

The erysipelas infections.—Out of 60 cases examined bacteriologically 38 were considered on clinical grounds to be typical instances of erysipelas. The following is a short

[1] Rose and Carless: Manual of Surgery, 1902, p. 94.
[2] Muir and Ritchie: Manual of Bacteriology, 1902, p. 182.
[3] Rose and Carless: Manual of Surgery, 1902, p. 96.
[4] Cheyne and Burghard: Manual of Surgical Treatment, 1904, Part i., p. 217.
[5] Rose and Carless: Manual of Surgery, 1902, p. 80.
[6] Andrewes and Horder: THE LANCET, Sept. 15th, 1906, p. 708.

account of a few of such cases as illustrate points of importance in the etiology of the disease.

CASE 2.—A skin graft was taken from the chest for a plastic operation on the fingers. 24 hours later erysipelas developed about the raw surface on the chest; the skin graft also suppurated freely, but did not give rise to erysipelas. A scarification of the skin at the spreading edge of the rash produced a sarcina only. The pus from the raw surface on the chest yielded a pure growth of a streptococcus. This coccus was in every respect a typical streptococcus pyogenes, and was apparently inoculated by the surgeon into the superficial layers of the skin, producing erysipelas, and into the subcutaneous tissues of the fingers, producing suppuration only.

CASE 22.—Osteomyelitis of the radius in a child was operated on and erysipelas arose round the wound seven days later. An abscess of the neck was opened three days before the onset of the erysipelas. Cultures from the bone abscess gave staphylococcus aureus, a diphtheroid bacillus, and a typical streptococcus pyogenes; from the neck abscess staphylococcus aureus, staphylococcus albus, and a typical streptococcus pyogenes were grown. In this case the aureus was no doubt the cause of the osteomyelitis and of the neck abscess. The streptococcus was introduced later into the arm and the neck, giving rise to erysipelas in the one place but not in the other.

CASE 26.—An abscess of the neck was opened and erysipelas developed some days later. Cultures from the bleb and from the abscess yielded a growth of staphylococcus albus and a typical streptococcus pyogenes. This was the only instance in which a streptococcus was successfully cultivated from the contents of the bleb. In this case the abscess was supposed to have been caused by the albus and the streptococcus to have been introduced in a subsequent dressing.

CASE 28.—An appendix abscess was opened and some weeks later erysipelas developed around the still discharging sinus. Cultures from the sinus gave a growth of staphylococcus albus and a fairly typical streptococcus faecalis. It is possible that in this case the streptococcus faecalis was derived from the intestinal tract.

CASE 29.—A breaking-down carcinomatous gland of the neck was opened, and the wound was afterwards plugged in order to check secondary hæmorrhage; within 24 hours erysipelas developed. Cultures from the neck produced a diphtheroid bacillus and a typical pneumococcus. This coccus was inoculated subcutaneously into a mouse which died four days later. Capsulated diplococci were present in the heart blood, and a pure culture of the pneumococcus obtained from the spleen. The breaking-down growth in the neck communicated with the buccal cavity, and it is possible that the pneumococcus causing the erysipelas was derived from the mouth and inoculated on to a raw surface at the time of the operation. The patient died, and a portion of the skin at the edge of the wound was removed at the post-mortem examination, and sections showed necrosis and œdema of the epithelium, a marked cellular exudation around the blood-vessels, together with numerous bacilli and a few Gram-positive diplococci.

CASE 49.—Cellulo-cutaneous erysipelas following a contusion of the elbow of three weeks' standing. The fluid from a bleb contained large numbers of polynuclear cells. Cultures from a bleb grew the staphylococcus albus only. Cultures from a surgical incision yielded a pure culture of a somewhat unusual streptococcus approaching in type to the pneumococcus, but which we have classed as a streptococcus pyogenes. A portion of skin was removed at the operation and sections of this show clearly a typical acute inflammatory condition of the epidermis itself; the superficial layers of the epidermis are in places stripped up, forming spaces (or blebs) which contain large numbers of polynuclear cells. These sections are markedly different from those derived from the cases of acute cellulitis, unaccompanied by erysipelas.

CASE 53.—A double osteotomy of the femora for rachitic curvatures was followed in three days by suppuration of both legs. The suppuration continued for some weeks, and erysipelas eventually supervened around the sinus in the left leg, the condition of the right leg remaining unaltered. Three days after the commencement of the erysipelas cultures were taken from the left leg and produced a staphylococcus aureus and a streptococcus. The following day cultures were taken also from the right leg and staphylococcus aureus and a streptococcus were again grown; about 24 hours later a typical attack of erysipelas arose around the sinus of the right leg. The streptococci derived from both legs were in every respect identical, and, although they acidified litmus mannite, and did not affect salicin, we have classified them as members of the streptococcus pyogenes group, since in every other respect they more closely resemble pyogenes than faecalis. This case is of particular interest in that it illustrates the fact that a streptococcus may give rise to erysipelas in one part of the body during the course of another attack of erysipelas, due to the same organism in another limb. In the case of the right leg the presence of the streptococcus was demonstrated before the actual onset of the erysipelas, but no evidence was obtained as to whether it had been lying latent in the sinus for any length of time. The staphylococcus aureus was no doubt the cause of the original suppuration following the osteotomy.

CASE 56.—Facial erysipelas arose in a woman with a purulent condition of the scalp. Anti-erysipelas serum was given subcutaneously into the belly wall, and was followed by a sloughing condition of the skin at the site of injection, and, later, by a typical erysipelas spreading from the point of inoculation. Cultures from the abscess yielded staphylococcus aureus, staphylococcus albus, and a typical streptococcus pyogenes. This case resembles Case 53 in that two separate attacks of erysipelas arose in different parts of the body during the same period. The serum used in this case seems to have been quite functionless, even though given, as it was, before the onset of the second attack. The mixed infection was possibly transferred by the patient from her scalp to the puncture wound of the hypodermic needle.

CASE 57.—A wound in the neck of a child was followed by facial erysipelas. Cultures from the wound yielded staphylococcus albus and streptococcus pyogenes. A culture from the streptococcus isolated was inoculated into two mice; in one case into the cellular tissues beneath the skin, in the other case into the scarified epidermis itself. The mouse inoculated subcutaneously died in three days, and numerous streptococci were found to be present in films taken from the heart blood. Sections taken at the site of inoculation showed acute inflammation of the subepidermal cellular tissues, the epidermis itself being normal. The second mouse remained well and was killed four days after inoculation; nothing could be seen at the site of the scarified skin and nothing abnormal was found in the sections of the epidermis in this situation; no organisms were found in the films of the heart blood.

The following tables (Tables I. and II.) give the full cultural characters of the streptococci isolated in the erysipelas cases:—

TABLE I.—*Erysipelas Cases: Streptococcus Pyogenes Group.*

	Case 2.	Case 6.	Case 7.	Case 15.	Case 17.	Case 22.	Case 23.	Case 26.	Case 33.	Case 39.	Case 46.	Case 49.	Case 52.	Case 53.	Case 54.	Case 56.	Case 57.	Case 59.
Morphology	Chains to 16.	Chains to 24.	Chains to 16.	Chains to 36.	Chains to 18.	Chains to 30.	Chains to 80.	Chains to 20.	Chains to 40.	Chains to 30.	Chains to 30.	Chains to 12.	Chains to 14.	Chains to 30.	Chains to 30.	Chains to 30.	Chains to 30.	Chains to 20.
Broth	Clear fluid, gran. dep.	Clear fluid, gran. dep.	Clear fluid, gran. dep.	Clear fluid, gran. dep.	Clear fluid, gran. dep.	Clear fluid, gran. dep.	Clear fluid, gran. dep.	Clear fluid, gran. dep.	Clear fluid, gran. dep.	Clear fluid, gran. dep.	Clear fluid, gran. dep.	Clear fluid, gran. dep.	Clear fluid, gran. dep.	Clear fluid, gran. dep.	Clear fluid, gran. dep.	Clear fluid, gran. dep.	Clear fluid, gran. dep.	Clear fluid, gran. dep.
Agar slant	P.p. cols.	P.p. cols.	P.p. cols.	P.p. cols.	P.p. cols.	P.p. cols.	P.p. cols.	P.p. cols.	P.p. cols.	Poor growth, no liq.	P.p. cols.	P.p. cols.	P.p. cols.	Growth, no liq.	Poor growth, no liq.	Poor growth, no liq.	Growth, no liq.	P.p. cols.
Jelly slant	Growth, no. liq.	Growth, no liq.	Growth, no. liq.	Growth, no. liq.	Growth, no. liq.	Growth, no. liq.	Growth, no. liq.	Growth, no. liq.	Growth, no. liq.	Nil.	Nil.	Nil.	Nil.	Nil.	Nil.	Nil.	Nil.	Nil.
Neutral broth (anaerobically)	Nil.	Nil.	Nil.	Nil.	Nil.	Nil.	Nil.	Nil.	Nil.	+	+	+		+	+	+	+	+
Litmus glucose ...	+	+	+	+	+	+	+	+	+	+	+	+		+	+	+		+
Litmus lactose ...	+	+	+	+	+	+	+	+	+	+	+	+		+	+	+	+	+
Litmus maltose ...	+	+	+	+	+	+	+	+	+	+	+	+		+	+	+		+
Litmus mannite ...	+	+	+	+	+	+	+	+	+	+	+	+		+	+	+	+	+
Litmus glycerine ...	+	+	+	+	+	+	+	+	+	+	+	+		+	+	+	+	+
Litmus cane sugar ...	+	+	+	+	+	+	+	+	+	+	+	+		+	+	+	+	+
Litmus raffinose ...	+	+	+	+	+	+	+	+	+	+	+	+		+	+	+	+	+
Litmus erythrite ...	+	+	+	+	+	+	+	+	+	+	+	+		+	+	+	+	+
Litmus sorbit	+	+	+	+	+	+	+	+	+	+	+	+		+	+	+	+	+
Litmus salicin	+	+	+	+	+	+	+	+	+	+	+	+		+	+	+	+	+
Litmus inulin	+	+	+	+	+	+	+	+	+	+	+	+		+	+	+	+	+
Litmus milk	Acid, no clot.	Acid, no clot.	Acid, no clot.	Acid, no clot.	Acid, no clot.	Acid, no clot.	Acid, no clot.	Acid, no clot.	Acid, no clot.	Acid, no clot.	Acid, no clot.	Acid, no clot.	Acid, no clot.	Acid, no clot.	Acid, no clot.	Acid, no clot.	Acid, no clot.	Acid, no clot.

Gran. dep. = granular deposit; p.p. cols. = pin-point colonies; no liq. = no liquefaction; + = acidified; and − = no acid production.

TABLE II.—*Erysipelas Cases; Streptococcus Faecalis Group.*

—	Case 20.	Case 28.	Case 30.	Case 51.
Morphology... ...	Chains to 8 +	Chains to 30 +	Chains to 90	Long chains.
Broth	Clear fluid, gran. dep.	Clear fluid, gran. dep.	Clear fluid, gran. dep.	General turbidity, gran. dep.
Agar slant	P.p. cols.	P.p. cols.	P.p. cols.	P.p. cols.
Jelly slant	Very poor growth, no liq.	Very poor growth, no liq.	Very poor growth, no liq.	No growth.
Neutral red broth (anaerobically)	*Nil.*	*Nil.*	Abundant growth, no alteration of.	*Nil.*
Litmus glucose ...	+	+	+	+
Litmus lactose ...	+	+	+	–
Litmus maltose ...	+	+	+	+
Litmus mannite	+	+	+	+
Litmus glycerine	+	–	–	–
Litmus cane sugar	+	+	+	–
Litmus raffinose...	–	+	–	–
Litmus erythrite	+	–	–	–
Litmus sorbit ...	–	–		
Litmus salicin ...	+	+	+	–
Litmus inulin ...	–	–	–	–
Litmus milk ...	Acid, no clot.	Not investigated.	Acid, no clot.	Acid, no clot.

Gran. dep. = granular deposit; p.p. cols. = pin-point colonies; no liq. = no liquefaction; + = acidified; and – = no acid production.

The pneumococcus obtained from Case 29 gave the following cultural reactions:—Broth, general turbidity and granular deposit; agar, pin-point colonies; jelly slant, no growth; neutral red broth (anaerobically), green fluorescence; litmus glucose, acid; litmus lactose, acid; litmus maltose, acid; litmus mannite, *nil;* litmus glycerine, *nil;* litmus cane sugar, acid; litmus raffinose, acid; litmus erythrite, *nil;* litmus salicin, *nil;* litmus milk, acid and solid clot. In addition, a mouse was inoculated subcutaneously and died four days later. Capsulated diplococci were present in smears from the heart blood and a pure culture of the pneumococcus was obtained from the spleen.

Out of these 38 cases of erysipelas an organism of the streptococcus class was found to be present in 29 instances. In only one case, in which a wound was present, was no evidence of a streptococcus obtained either in the films or in cultures made from the wound; diplococci only were present in the films, and cultures yielded a profuse growth of the staphylococcus aureus. We regard this exception as due to a technical error and consider that a streptococcus was probably present but was not demonstrated owing to the abundant growth of the staphylococcus. In the remaining eight cases no wound was present, and it was only possible to obtain cultures either from a bleb or from the fluid obtained on scarifying the skin, and both of these appear to be most unfavourable materials for demonstrating the causative organism. That the abundant inflammatory exudate, usually present in the blebs, should so rarely produce a growth of the streptococcus was a somewhat unexpected occurrence, and on only one occasion was such a growth obtained; the explanation may be that these localised collections of serum possess bactericidal properties. In the 30 cases, therefore, in which a wound was present an organism of the streptococcus class was found on 29 occasions. Of these 29 strains six could not be isolated owing to the presence of other organisms. In 23 cases the full cultural characters of the organisms were obtained, and these have been grouped according to the classification of Andrewes and Horder—that is to say, 18 have been classed as members of the streptococcus pyogenes group, four as examples of the streptococcus faecalis, and one as a pneumococcus. While it would, perhaps, be unwise to accept the classification of Andrewes and Horder as final, and to regard the streptococci which they have differentiated as true species, yet sufficient evidence is afforded that the various strains of streptococci can, on the basis of their cultural reactions, be divided into a few fairly definite groups, and that any member of each of these groups is capable of retaining its special cultural reactions for many generations either outside the body or after its passage through animals. If, then, the streptococcus erysipelatis possessed any peculiar and established pathogenic properties, and if that streptococcus produced only erysipelas, we should expect to find that it possessed also peculiar and established cultural reactions. There is, however, we think, sufficient evidence that while the typical streptococcus pyogenes is the coccus most frequently met with in erysipelas, yet streptococci, which exhibit considerable cultural differences, and even pneumococci, are in a fair percentage of cases the causative organisms. Moreover, the variability of the organisms met with in erysipelas appears, as will be seen, to be closely comparable with that of the organisms present in cellulitis, a condition which has never enjoyed the distinction of being considered a specific disease. It has, however, been urged in favour of the specific character of erysipelas that the disease is transferred as such from one patient to another; yet while this undoubtedly does occur, as, indeed, one would expect, such evidence as we have been able to obtain shows it to be an event of considerable rarity. The subjoined tables (Tables III. and IV.) have been drawn up from the published hospital statistics concerning the incidence of erysipelas cases arising during the stay of patients in St. Thomas's Hospital. Only those instances of erysipelas arising round a pre-existing wound have been considered, as in these cases only were the statistics showing the incidence of erysipelas in surgical wards reliable. The inclusion of other cases, such as those of facial erysipelas, would, as a matter of fact, have made little difference in the statistical relationship between the number of beds and the number of instances of the disease in question. The average number of surgical beds was 264 and was distributed as follows: 240 in the general wards, and 24 in the septic wards. From 1896 to 1905 no attempt was made to isolate erysipelas cases from other cases admitted to the septic wards, but in 1906 six additional beds, in small isolation wards in the septic block, were added for the accommodation of erysipelas cases. This year is omitted from both tables since the arrangement was

TABLE III.—*Showing Incidence of Erysipelas around Wounds arising in Hospital.*

Year.	Number of cases.	In septic wards.	In general surgical wards.
1896	18	2	16
1897	17	1	16
1898	18	4	14
1899	12	2	10
1900	19	3	16
1901	7	2	5
1902	18	3	15
1903	27	8	19
1904	19	4	15
1905	21	5	16
Total for ten years	176	34	142
Percentage ...	—	19·31	80·69

Note.—Proportion of children under six to adults is about the same in general and septic wards.

TABLE IV.—*Showing Incidence of Erysipelas around Wounds arising in Hospital after Isolation Wards were established for Erysipelas Cases.*

Year.	Number of cases.	In septic wards.	In general surgical wards.
1907	18	8	10
1908	13	7	6
Total	31	15	16
Percentage ...	—	48·4	51·6

made in the middle of 1906. In 1907 and 1908 we have the figures for a short period during which the erysipelas cases were isolated. A comparison of these two tables shows clearly that while the incidence of erysipelas is, as one would expect, greater in septic wards than in the general surgical wards, yet the separation of erysipelas from other septic cases has had no effect in lessening the occurrence of erysipelas in these septic wards.

The figures for the occurrence of erysipelas in the septic wards for 1908 include three cases which arose under the following circumstances. The erysipelas isolation wards being full, a girl with a sinus of buttock surrounded by a septic eczema was admitted to the female septic ward on Dec. 9th. On the following day, with no constitutional disturbance, there was an added, somewhat marginated, erythema over the buttock. This redness lasted only for 24 hours and did not spread beyond the buttock. The patient remained in the ward. On Dec. 18th two cases in the same ward, one with a wound due to necrosis of the jaw, and the other with a discharging retro-pharyngeal abscess, developed erysipelas around their wounds; they were transferred to the erysipelas ward. Subsequently a culture was taken from the sinus of buttock and this yielded a growth of a streptococcus, and the case was then regarded as having been one of erysipelas of a fleeting nature or an instance of a "septic rash." There was at the same time a case of facial erysipelas in one of the two male septic wards because the male erysipelas ward was full, and in this ward no other cases of erysipelas arose. These two parallel cases go to prove that the danger of transmitted infection depends on the presence of discharge from a streptococcal wound rather than upon the risk of contagion from such a lesion as facial erysipelas, which is practically free from discharge. In this connexion it may also be noted that one or two cases of doubtful erythema were admitted direct to the special erysipelas ward, and the subsequent course of these cases proved that they were not suffering from erysipelas on admission, nor did they contract it, though exposed to infection, at any rate by aerial contagion.

Microphotograph (No. 2 eyepiece, ⅛th inch objective). Section through centre of erysipelas "bleb" showing the collections of polynuclear leucocytes on the surface and within the layers of the epidermis. There is no cellular infiltration of the deeper structures.

With regard to the dressing of wounds in general, we may state that, as a rule, the dressing used was plain sterilised gauze, though in some of the dirtier cases the gauze was wrung out in 1 in 40 carbolic before being applied to the wound.

There is direct evidence that the same organism may produce at the one time erysipelas and at the other cellulitis, an experiment which was accidentally performed in one case in this series in which a streptococcus was introduced into two separate lesions, giving rise to local suppuration in one place and typical erysipelas in the other. In two other cases, however, the transference of the streptococcus from one erysipelas infection to another lesion in the same patient was followed by a second attack of erysipelas, an event which may be explained by the supposition that the point of entry of the organism was in each case the epidermis. The evidence of animal inoculation is certainly opposed to the view that the organisms of erysipelas possess any specific properties. The animal experiments performed in this investigation are not sufficiently numerous or definite to admit of any conclusions being drawn from them; in one instance, however, the organism isolated from a case of erysipelas produced cellulitis, septicæmia, and death in a mouse, but no erysipelas. McFarland states that: "When injected into animals Fehleisen's coccus behaves exactly like streptococcus pyogenes,"[7] and in another place, "If the cultures (of streptococcus pyogenes) be of moderate virulence and the ear of a rabbit be carefully inoculated with a small quantity of a pure culture, local erysipelas usually results—if, however, the streptococcus be highly virulent, the rabbit dies of general septicæmia."[8] That the varying lesions usually obtained by inoculating animals with streptococci from various sources do not necessarily depend upon the degree of virulence of the organism in each case is shown by the experiment referred to above, in which a mouse died from septicæmia with spreading cellulitis after the inoculation of a streptococcus into its subcutaneous tissues, whilst another mouse simultaneously inoculated by means of rubbing in a culture of the same streptococcus into the scarified skin escaped unharmed; the different effect in this case might reasonably be explained solely by the difference in the point of entry of the organism.

Erysipelas is commonly considered to be more infectious than cellulitis, and this may be due to the more superficial nature of the inflammation and to the desquamation which accompanies the former condition, but the danger of infection is the danger of transferring streptococci from one patient to another, a sufficiently serious event, of which perhaps the least serious effect is the production of erysipelas.

With regard to the mode of infection in these 38 cases of erysipelas, in 21 infection occurred outside the hospital, and in no instance was any history of exposure to infection obtained; in many of the cases of facial erysipelas no obvious wound was present at the time of admission to the hospital, but some slight abrasion of the surface epithelium had doubtless taken place and subsequently healed. In 13 of these 21 cases in which streptococci were proved to be present other organisms were present in six cases, a streptococcus alone in seven cases. Of the 17 cases of erysipelas arising in the hospital, one was infected at an operation and yielded a pure culture of a streptococcus. In the remaining 16 cases streptococci were found to be present in 15, 13 times in company with other organisms, and twice only in pure culture. Many of these cases were infected with other pyogenic organisms at the time of operation and when suppuration commenced were in some instances transferred to a "septic" ward, which is now isolated from the erysipelas ward and nursed by a different staff. The preponderance of mixed infections in the hospital cases in contrast to the high percentage of pure infections in those cases arising outside the hospital is evidence of the comparative failure of aseptic precautions when dealing with a large number of various infections. The one hospital case in which no streptococcus was found was a case of facial erysipelas, without obvious lesion, arising in a female medical ward. A history of a previous attack of erysipelas was obtained in several instances in this series, and the extremely short period of immunity conferred by an attack was well shown in the cases of the two patients, in whom two separate outbreaks of erysipelas developed within a few days of the original attacks. It is worthy of note that while such streptococcal and pneumococcal infections as erysipelas, lobar pneumonia, and probably rheumatic fever are accompanied by but a brief period of immunity, and, indeed, actually predispose the patient to a second attack, yet scarlet fever, which is by some considered to be a streptococcal infection, frequently confers upon the patient a complete and life-long immunity.

A further point in the etiology of erysipelas, which was particularly investigated in this series, was the exact site of the inflammatory processes, and it would seem that in this consists the main, if not the only, difference between this

[7] McFarland: Text-book upon the Pathogenic Bacteria, 1906, p. 268.

[8] Ibid., p. 264.

condition and that of cellulitis. Owing to the fact that in the great majority of cases no indication for surgical incision arose, in only two instances could portions of the skin be obtained for microscopy, and in both of these the epidermis itself showed the histological characters typical of acute inflammation. Many cases, however, were accompanied by the formation of vesicles within the layers of the epidermis, and the cytological evidence of the fluid obtained from these yielded abundant evidence of the superficial site of the acute inflammation, the cells of the fluid in every instance consisting almost entirely of microphages and macrophages. In addition, in some cases in which blebs were absent similar cytological findings were obtained on scarifying the epidermis. The evidence that in erysipelas the condition is one of acute inflammation of the epidermis itself is in striking contrast to the histology of cellulitis, for although a clinical examination of the skin in cellulitis would appear to reveal all the characters of an acute inflammation, yet examination of sections of the epidermis in this condition presents no evidence of any departure from the normal.

The treatment of erysipelas is somewhat outside the scope of this paper, but it may be mentioned that many of the cases were treated by some form of serum, and, on the whole, with very little effect, a result which may be in part explained by the probability that in many instances the serum employed was obtained by the immunisation of a horse with a streptococcus of different nature from the organism producing the erysipelas. In the only case in this series in which a chronic suppurative condition followed the acute attack of erysipelas, treatment by a vaccine prepared from the streptococcus obtained from the patient's tissues was promptly followed by marked improvement.

Cases of erythema of doubtful nature.—These cases, five in number, consisted of erythemata arising in connexion with septic wounds. In three instances the rash was generalised and the diagnosis of "surgical" scarlet fever was made. The first of these cases is included only as a control to the findings in the erysipelas cases. There was an erythema of the face without any constitutional symptoms. The serum obtained from an almost healed cutaneous wound in the erythematous area yielded no evidence of inflammation, nor was any pathogenic organism obtained from cultures taken from the fluid. In the remaining four cases an organism of the streptococcus class was obtained on three occasions, and a staphylococcus aureus in one case. In no case could a section of the skin be obtained, nor were any blebs present, and it is uncertain whether there was inflammation of the skin itself or not. It seems possible, however, that many of these "septic" rashes spreading from an infected wound are of an acute inflammatory nature and associated with organisms of the streptococcus class, but it is improbable, at any rate in the cases in which the rash becomes generalised and resembles the eruption of scarlet fever, that the epidermis itself shares in the acute inflammation. The redness of the skin is probably due to a cutaneous dilation of the blood-vessels such as is present in the erythema of scarlet fever. Owing to the presence of other organisms the streptococcus could only be isolated in one of these cases; its cultural characters were as follows: Morphology, chains to 30; broth, clear fluid, granular deposit; agar, pin-point colonies; jelly, no growth; neutral red broth (anaerobically), abundant growth, no alteration of colour; litmus maltose, acid; litmus mannite, *nil;* litmus raffinose, acid; litmus salicin, *nil;* and litmus milk, acid, no clot.

Cellulitis cases.—Twelve of these cases were investigated altogether. They were chosen as typical cases of undoubted cellulitis and showed no clinical features of interest. The full cultural characters of the cocci isolated are given in the accompanying tables (Tables V., VI., and VII.), and the organisms are grouped in the same manner as in the erysipelas cases.

TABLE V.—*Cellulitis Cases; Streptococcus Pyogenes Group.*

—	Case 8.	Case 12.	Case 14.	Case 21.	Case 24.	Case 36.	Case 43.
Morphology	Chains to 70.	Chains to 24.	Chains to 22.	Chains to 24.	Chains to 70.	Long chains.	Long chains.
Broth	Clear fluid, gran. dep.	Clear fluid, gran. dep.	Clear fluid, gran. dep.	Clear fluid, gran. dep.	Clear fluid, gran. dep.	Clear fluid, gran. dep.	Clear fluid, gran. dep.
Agar slant	P.p. cols.	P.p. cols.	P.p. cols.	P.p. cols.	P.p. cols.	P.p. cols.	P.p. cols.
Jelly slant	Growth, no liq.	Growth, no liq.	Growth, no liq.	Growth, no liq.	Growth, no liq.	Growth, no liq.	Growth, no liq.
Neutral red broth (anaerobically).	*Nil.*	*Nil.*	*Nil.*	*Nil.*	*Nil.*	*Nil.*	*Nil.*
Litmus glucose	+	+	+	+	+	+	
Litmus lactose	–	+	–	+	–	–	–
Litmus maltose	–	+	+	+	+	–	
Litmus mannite	–	–	–	–	–	–	–
Litmus glycerine	–	–	–	–	+	–	
Litmus cane sugar	+	+	+	+	+	–	
Litmus raffinose	–	–	–	–	+	–	–
Litmus erythrite	–	–	–	–	–	–	
Litmus sorbit	–	–	–	–	+	–	
Litmus salicin	–	+	+	+	+	–	+
Litmus inulin	–	–	–	+	+	–	
Litmus milk	Acid, no clot.	Acid, no clot.	Acid, no clot.	Acid, no clot.	Acid, no clot.	Acid, no clot.	Acid, no clot.

Gran. dep. = granular deposit; p.p. cols. = pin-point colonies; no liq. = no liquefaction; + = acidified; and – = no acid production.

TABLE VI.—*Cellulitis Cases; Streptococcus Fæcalis.*

—	Case 3.	Case 11.
Morphology.	Chains to 8.	Chains to 22.
Broth.	Clear fluid, gran. dep.	Clear fluid, gran. dep.
Agar.	P.p. cols.	P.p. cols.
Jelly.	Faint growth, no liq.	Very faint growth, no liq.
Neutral red broth (anaerobically).	*Nil.*	*Nil.*
Litmus glucose.	Acid.	Acid.
Litmus lactose.	*Nil.*	Acid.
Litmus maltose.	Acid.	*Nil.*
Litmus mannite.	Acid.	*Nil.*
Litmus glycerine.	*Nil.*	*Nil.*
Litmus cane sugar.	Acid.	Acid.
Litmus raffinose.	*Nil.*	*Nil.*
Litmus erythrite.	*Nil.*	*Nil.*
Litmus sorbit.	*Nil.*	*Nil.*
Litmus salicin.	*Nil.*	*Nil.*
Litmus inulin.	*Nil.*	*Nil.*
Litmus milk.	Acid, no clot.	Acid + solid clot (3 occasions).

In 12 cases of acute cellulitis a streptococcus was found to be present on 10 occasions, once an unusual coccus was

TABLE VII.—*Cellulitis Cases; Unclassified Coccus.*

—	Case 10.
Morphology.	Pairs and chains of 4.
Broth.	General turbidity.
Agar.	Round, somewhat opaque colonies of a size intermediate between those for a streptococcus and those for a staphylococcus.
Jelly.	Good growth; liquefaction in 1 week.
Neutral red broth (anaerobically).	No growth.
Litmus glucose.	Acid.
Litmus lactose.	Acid.
Litmus maltose.	Acid.
Litmus mannite.	*Ntl.*
Litmus glycerine.	Acid.
Litmus cane sugar.	Acid.
Litmus raffinose.	*Ntl.*
Litmus erythrite.	*Ntl.*
Litmus sorbit.	Acid.
Litmus salicin.	*Ntl.*
Litmus inulin.	Acid.
Litmus milk.	No alteration of medium.

This coccus proved non-pathogenic to a guinea-pig.

obtained, and once a staphylococcus aureus. In the case in which staphylococci only were present no incision was made and the cultures were taken only from a varicose ulcer which was the starting point of the cellulitis. In the 11 cases in which organisms of the streptococcus class were present the coccus was not isolated on one occasion owing to an air contamination; of the other 10 cases seven proved to be due to the streptococcus pyogenes, two to a streptococcus fæcalis, and one to an unclassified coccus. The cultural characters of the strains of streptococci obtained showed no typical variations by which they could be distinguished from the strains obtained in the erysipelas cases. Owing to the fact that an incision was necessary in the majority of cases, the streptococcus was frequently found in pure culture, and it was possible to obtain small portions of the skin for microscopy. Although all the clinical signs of acute inflammation were present in each case the only signs proper to the skin itself would appear to be those of redness and possibly heat, due no doubt to a dilatation of the cutaneous vessels. In all the sections examined no microscopical evidence was found of acute inflammation of the skin itself; the inflammatory exudate was confined to the subcutaneous tissues, and there was no invasion of the epidermis by polynuclear or other cells. Cases of acute cellulitis are usually accompanied by a considerable degree of fever and marked constitutional disturbance; if actual pus formation does not occur they run a rapid course, tending to recovery. Erysipelas and cellulitis appear to differ only in the effects which an acute inflammation of the skin would give on the one hand, and of the deeper tissues on the other. The epidermis is not a suitable tissue for the development of large abscess cavities within its substance, but the formation of cuticular "blebs" filled with an acute inflammatory exudate is comparable with the larger pockets of pus frequently met with in the subcutaneous tissues in cellulitis.

Lymphangitis cases.—Five only of these cases were examined and they were clinically chosen as typical instances of the disease. In each case a pure culture (if the additional presence of a diphtheroid bacillus on one occasion be excepted) of the staphylococcus aureus was obtained. The full cultural characters of four of the staphylococci obtained were investigated, but these differ in no way from those of similar organisms isolated from other pathological conditions, with the exception that no clot was produced in milk in any case. Table VIII. shows the cultural properties of the cocci examined.

A portion of the reddened skin was removed on one occasion and no evidence of acute inflammation was found in it. Cases of lymphangitis usually present a longer incubation period and less severe constitutional disturbances than are customary in erysipelas or cellulitis, and in accordance with this they would appear to be usually caused by an organism of different type and less severity. Lymphangitis can, as a rule, only be diagnosed in its early stages, in which the subcutaneous red lines of the inflamed lymphatics are seen to connect the primary lesion with the enlarged, and often suppurating, collections of glands. Staphylococci are particularly liable to spread by the lymphatic circulation and streptococci by

TABLE VIII.—*Lymphangitis Cases; Staphylococcus Aureus.*

—	Case 9.	Case 16.	Case 19.	Case 37.
Broth	General turbidity.	General turbidity.	General turbidity.	General turbidity.
Agar slant	Large yellow colonies.	Large yellow colonies.	Large yellow colonies.	Large yellow colonies.
Jelly slant	Liquefaction in 2 hours.	Liquefaction in 2 hours.	Liquefaction in 2 hours.	Liquefaction in 2 hours.
Neutral red broth (anaerobically).	Green fluorescence.	Green fluorescence.	Green fluorescence.	Green fluorescence.
Litmus glucose ...	+	+	+	+
Litmus lactose ...	+	+	+	+
Litmus maltose ...	+	+	+	+
Litmus mannite...	+	+	+	–
Litmus glycerine	+	+	+	+
Litmus cane sugar	+	+	–	+
Litmus raffinose...	–	–	–	–
Litmus erythrite	–	–	+	+
Litmus sorbit ...	+	–	–	–
Litmus salicin ...	–	–	+	–
Litmus inulin ...	–	–	–	–
Litmus milk ...	acid, no clot.	acid, no clot.	acid, no clot.	acid, no clot.

+ = acidified; – = no acid production.

direct continuity, so that in infections by the former organism glandular involvement is almost invariable, while in acute streptococcal infections the glands frequently escape. Hence, either glandular enlargement or the presence of a staphylococcus would be in favour of the diagnosis of lymphangitis rather than cellulitis.

Résumé.—The objection that all the cases selected for cultural investigation were not really erysipelas must, of course, be met, but the examples chosen were characterised by most of the accepted clinical signs of cutaneous erysipelas—that is to say, in nearly all of them there was a shiny red œdema of the skin with well-defined edge, and the presence of vesicles on the cutaneous surface, accompanied in most instances by constitutional symptoms of fever, headache, anorexia with initial vomiting, and, not infrequently, shivering or an actual rigor. It was, however, discovered at an early period of this investigation that the certainty of diagnosis of erysipelas rested on three groups of phenomena—namely, such physical signs as have been mentioned above, constitutional disturbance, and the local spread of the erythema with its growing margin, and of these the last appears to be the most constant feature in streptococcal infections of the skin. Vomiting or shivering may be absent in cases which present the typical skin lesion of erysipelas, while in a few of our cases of cellulitis these severe constitutional disturbances occurred—cases which yielded a growth of a streptococcus but which showed no inflammation of the epidermis. Fever, as a rule, was much more marked in the typical erysipelas cases than in those of cellulitis, even where a quantity of pus was shut in and required evacuation by the knife, but there were several cases with initial vomiting and a characteristic spreading red rash, in which the temperature was never higher than 100° F., as taken in the mouth. The conclusion at which we arrived, therefore, was that the most constant and reliable phenomenon on which a diagnosis of erysipelas could be based was the spread of the erythema from a local focus, this spread of infection being characterised by true inflammation of the epidermis with exudation of leucocytes, and not merely a transitory erythema due to vascular dilatation, such as occurs in cellulitis and lymphangitis.

Erysipelas, then, may be caused by a variety of organisms, and if the application of Gordon's tests be allowed as a means of differentiating the various species of streptococci,

it would appear that a considerable percentage of cases are produced by organisms other than the streptococcus pyogenes. The organisms isolated from the cases of erysipelas vary on lines comparable with those obtained from cases of cellulitis; nor are any particular cultural properties found in organisms obtained from the one disease and not in those derived from the other. In one instance both local suppuration and typical erysipelas were produced in the same patient by the same streptococcus, an event in accordance with the results obtained in some instances of animal inoculation. The main difference between erysipelas and cellulitis would seem to depend, not upon the virulence of the causative organism, but upon the actual site of the lesion; in erysipelas there is invariably acute inflammation of the epidermis itself; in cellulitis deeper tissues are involved and the epidermis escapes. The period of immunity conferred by an attack of erysipelas is extremely short, and it would appear either that one person is more liable to the infection than another, or that one attack actually predisposes to a second. The course of acute erysipelas would seem at present to be little influenced by serum therapy, and it is possible that a better result might be obtained by the accurate method of obtaining the appropriate serum in each infection, if such a proceeding were practicable. In the few cases of erythemata other than erysipelas examined an organism of the streptococcus class was commonly present in the local wound. In the five cases of lymphangitis examined a typical staphylococcus aureus was obtained in each instance.

In conclusion, we would define erysipelas as an acute inflammation of the epidermis due to the presence of one of the organisms of the streptococcus class, of which the streptococcus pyogenes is the most frequent example. Cellulitis appears to be a strictly comparable inflammation of the cellular tissues, and when the inflammatory processes involve both the epidermis and the cellular tissues the condition of cellulo-cutaneous erysipelas results. Acute lymphangitis would seem to be a less virulent infection due, as a rule, to organisms of the staphylococcus class, with a greater tendency to spread, as its name implies, by the lymphatic system. Erysipelas is not, in the true sense of the term, a specific disease, since it may be produced by a variety of organisms, and these organisms are capable of producing other diseases in other parts of the body.

In the shortness of its incubation period, in the acuteness of its onset—often with marked constitutional disturbances, in its course, in its usual tendency to early and spontaneous cure, and in the nature of the immunity which it confers, erysipelas presents a striking parallel to both acute cellulitis without local suppuration and to acute lobar pneumonia. Nor is it surprising that such similar diseases should all be due, as a rule, to organisms of the same class, the differences in the effect of each disease to the individual being caused by the differences in the localities attacked. It has long been recognised that acute lobar pneumonia may be produced not only by the pneumococcus but also by other similar organisms, such as the streptococcus pyogenes, and that the pneumococcus is capable of effecting an entry and producing disease in other localities than the lung, and we believe that an extension of similar views to the nature of erysipelas constitutes the true etiology of the disease.

We have to thank the members of the staff of St. Thomas's Hospital for permission to make use of their cases.

THE WORSHIPFUL COMPANY OF PLUMBERS.—The Lord Mayor-elect, Sir John Knill, Bart., was duly sworn into office as Master of the Worshipful Company of Plumbers at the quarterly meeting of the Court at Guildhall on Sept. 30th. Before vacating the chair the late Master, Mr. Adrian Pollock, made an interesting presentation to Mr. Charles Hudson. Past Master and present Renter Warden of the Company, of a copy of a water-colour drawing, showing a view of the old Plumbers' Hall, pulled down to make way for Cannon-street Station. Mr. Hudson is the oldest surviving member of the Court, having taken up his freedom and livery in the old hall in 1854. A committee was appointed to examine the note-books and drawings of the plumber apprentices attending the technical classes whose names appear on the Company's register of indentured apprentices.

A CASE OF SYPHILITIC "REINFECTION" NINE YEARS AFTER, WITH SOME REMARKS ON SYPHILITIC "IMMUNITY"

AND A NOTE ON TREATMENT.

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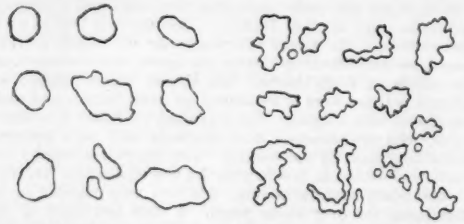
IN May, 1897, I was consulted by a gentleman for what he called a slight irritation of the penis. He had, he said, never been ill before. On April 10th of the same year he had had connexion, and on May 9th he noticed a slight sore in one of the fossæ of the frænum. On examination I detected a small superficial ulcer in the left fossa. By gently "dipping" the index and thumb and lifting the sore from the subjacent tissues a distinct indurated base could be felt. His inguinal glands were swollen, hard, indolent, and four or five could be felt in each groin. They were characteristic. Hard chancres in that region have two distinct peculiarities: (1) they are, of course, small and crescentic or fissure-like; and (2) the induration at their base has to be looked for in the manner I mentioned above. I at once put him under mercurial treatment and appropriate remedies were applied locally. The chancre healed within three weeks. Six weeks afterwards he developed a typical roseolous rash affecting chiefly the chest, the abdomen, and the inside of both thighs. His throat was congested and mucous patches were to be found on both tonsils and under the tip of the tongue. He consulted Professor Fournier of Paris, who corroborated the diagnosis and also approved of the treatment he was having. The symptoms rapidly subsided and within a few months he was absolutely free from all secondary manifestations. He was very regular in his attendance for over three years. I then lost sight of him until June 18th, 1906, when he again told me that he was very much troubled with another sore of the penis. On examination this proved to be a small circular ulcer about a quarter of an inch in diameter, situated on the dorsal aspect of the coronal fissure. The base was indurated and this distinctly so. The inguinal glands in both groins were characteristic of a syphilitic adenopathy. He had had connexion of a suspicious nature about five weeks previously, and he told me that he had never suffered from any syphilitic "reminders" since I last saw him in 1901. The ulceration healed within 18 days and the glands diminished gradually in size. In July he again developed a copious roseola, and again his buccal mucous membranes became affected. The scalp this time became the seat of a few irritating papules. These secondary symptoms were the exact repetition of what he suffered in 1897. The same treatment was again prescribed and this until quite recently.

According to the very great majority of authorities reinfection with the syphilitic virus is possible. Sir Jonathan Hutchinson relates at some length the case of a young surgeon who contracted syphilis in 1860 and who was treated by him with large doses of mercury. In 1865 he again contracted a chancre which indurated and was followed again in due course with a distinct roseola and fresh mucous patches on both tonsils. The same patient, curiously enough, suffered from two attacks of small-pox. Rodet mentions two cases, and in these the interval between the first and second infection was four and eight years respectively. Dr. L. Hardie mentions a case, also in a surgeon, who 11 years after the first infection contracted a second chancre which was followed after a few weeks by typical secondary symptoms. All the cases published by Diday are open to caution, for, according to him, the secondary symptoms do not appear after a second infection, but are followed within a short time by gummas, nodes, and deep serpiginous ulcerations, lesions which are tertiary and may simply be the manifestations of the primary infection. Personally, I must say, though it has been my lot for the last 16 years to see and to treat, both in my hospital and private practices, several thousand syphilitic patients, that it is my first experience of such a case.

We must be most careful not to confound a true syphilitic reinfection, whose paucity in numbers only proves the absolute rarity of such cases, with what Professor Fournier calls

"late syphilitic secondaries," such as erosions of the penis, the vulva, and the lips. A recurring roseola, such a roseola appearing 8 and 10 times in the same patient, and this up to the eighth, ninth, and tenth year after the primary infection, may also be a source of error. A gumma of the penis, and above all a herpetic affection where caustic has been used by the patient, may be at times exceedingly puzzling. We all know that in herpes the base is not indurated, the inguinal glands are not affected, or, when so, only to a slight extent, and they lack the features of the syphilitic adenopathy. Polycyclism and microcyclism are the only diagnostic signs between herpes and a Hunterian chancre. The contour of a syphilitic chancre is either circular, ovoid, or crescentic, and more or less regular. On the contrary, on examining with a pocket lens a herpetic lesion sufficiently extensive, the contour is noted to be irregular and geographic-like in outline, and this as if several segments of a minute circumference had actually joined together (polycyclism). These segments are all parts of small circles (microcyclism), like what the segments of a pin's head would be. These two signs are pathognomonic of herpes. The syphilitic chancre, being as a rule a solitary lesion, cannot, obviously enough, give the aspect of a compound one such as herpes. The diagram below speaks for itself. And lastly, in herpes the



Contour of hard chancre. Contour of herpes vesicles.

erosions are very small, multiple, irregular, and at times disseminated. They are also more superficial, heal more rapidly, and this without leaving any induration.

Hard chancre must not be mistaken for the soft ones. The soft is, as a rule, multiple and is a distinct ulcer. The syphilitic is usually solitary and a mere erosion. It has no special borders as are usually described in text-books, but on the contrary is on the same level as the adjacent tissues. It has not the proper suppuration of the soft one, and its base is indurated in a manner characteristic of its locality. The glands in the hard chancre are indolent and have no tendency to suppuration. In the soft one the adjacent glands may not be affected at all or there might be only one which is swollen, painful, and very prone to suppuration. The hard chancre is very rarely auto-inoculable, but one chancre may appear within a few days after the other (successive chancre) and be mistaken for an instance of auto-inoculation.

My excuse for going so deeply into these different diagnostic features, which may appear out of place, is simply to show the care I took not to mistake one of them for a reinfection with a hard chancre. Lately a great scientist in this country said: "We know that one attack of syphilis confers immunity during the rest of the individual's life." The case just related, and a few others which one feels bound to consider as authentic, are in direct contradiction to this statement. We gather that the chief feature of immunity in syphilis is its coexistence with the presence of an active virus in the organism which may confer a refractory state to the skin and mucous membrane to the attacks of the external treponemes. This skin and mucous immunity, however, may not be general and absolute. In vaccination the whole skin may become refractory, yet the cornea may not be so, or one cornea may have become immune and the other not. Most important of all are the experiments of Finger and Landsteiner on men, and according to them there is no absolute immunity in syphilis, and this either in the primary, secondary, or tertiary stages. The majority of syphilitics react in a specific manner to the virus, and this in proportion to the quantity of the virus which they ingeniously injected in subcutaneous pouches. Those in the tertiary stage, as a rule, reacted in a special manner when inoculated with virus taken from primary or secondary lesions. At the seat of inoculation erythematous patches were formed with a distinct circumscribed hard base. From the foregoing we may conclude that (1) immunity in syphilis is not absolute, but only a relative one; (2) reinfection is possible under certain circumstances even when the tissues are not absolutely sterilised.

Treatment.—The percentage of 3 to 5 of the syphilitic patients developing late formidable tertiary lesions after careful treatment is the result of statistics some 20 years old, and with our better knowledge of the disease this could further, no doubt, be reduced. A long course of treatment is, perhaps, the only means we actually possess to effect this. Every mode of treatment I consider to be insufficient if it has not lasted at least four years. As an example, take 100 cases of general paralysis. In 95 it has occurred in those who have had an insufficiently long treatment—about a year or so—and in only about five of those who had undergone one of at least three years duration. The same result applies to tabes. These figures are the best mathematical arguments in favour of a long course of mercury. Mercurialisation in syphilis can, as Professor Fournier very lately said, be compared to vaccination. The first is a preventive which no one can doubt against the very vast majority of possible future syphilitic manifestations, but, like vaccination, it is only a temporary one, the syphilitics having to be "re-mercurialised" in order again to become relatively immune for a time more or less long against the influence of the syphilitic virus.

The treatment, according to the same great authority, could be divided into different stages: (1) Immediately after infection a course of mercury lasting for at least two years, and this whether the patient is troubled with reminders or not; (2) a second course lasting the whole of the fifth year; (3) another course of mercurial treatment lasting part of the seventh and eighth year. This, of course, has to be modified according to circumstances and individual peculiarities. Personally, I consider it a perfect heresy to say that two years of mercury is a sufficiently adequate one. It may be enough for the present, but what about the future? How many cases of syphilis have we not all seen who after having been treated according to the most modern methods for this brief period have come to us again after a few years the victims of the most formidable tertiary lesions! Yet they were considered cured and their case a mild one! Patients with mild secondary symptoms, though it may seem paradoxical to say so, are the worst ones, and the reason for this is because, once they are no longer troubled with any outward manifestation of the disease, they, as a rule, abandon all further treatment. On the other hand, those who are afflicted with constant, troublesome, and repeated "reminders" lasting a few years and necessitating constant treatment, have more chances to escape the tertiary manifestations and also the formidable so-called parasyphilitic affections. The relative immunity conferred by a mercurial course of treatment is, as I have said already, but temporary. The case of Tushmann corroborates this to the fullest extent. It is briefly that of a syphilitic woman becoming pregnant seven times. She is not during all this time treated, and each time she gives birth to a syphilitic child. Becoming pregnant for the eighth and ninth time, she undergoes a most energetic course of mercury and has then the satisfaction each time of giving birth to a healthy child. For the tenth time she again becomes pregnant, neglects all treatment as she was considered cured, and once more gives birth to a syphilitic infant who dies at the sixth month. Finally, she is pregnant for the eleventh time, undergoes a course of treatment, and again gives birth to a healthy child. This case needs no comments.

Again, we know that general paralysis, which is the most dreaded syphilitic tertiary manifestation, and all the more so as it is incurable, is most prevalent between the seventh and the twelfth year after infection. Would it not be possible to a certain extent, by a rigorous course of treatment during the fifth and seventh year of the disease to reduce the percentage of those unfortunates who fall victims to that dreadful calamity? It would, at all events, be worth our while to try it and thus give the benefit of the faintest possible chance to our patients. It would certainly be better than telling them that they are "cured" or apparently so for all purposes, after a course of two short years of treatment. They then neglect all the hygienic rules

that a syphilitic, I consider, should at all times observe and continue to observe. Let me then again repeat, however trying it may be, that the best safeguard, in fact, the only safeguard, which a syphilitic can possibly have to avoid these irreparable catastrophes, resides, and resides alone, in a long course of treatment which has been methodically carried out, and this at frequent and successive intervals extending over a period of several years. Immunity in syphilis has only a relative signification. It does not, in the least, imply an absolute cure. Mercury, and mercury alone, can, just like vaccination in small-pox, confer a temporary immunity, more or less long, against the specific virus which is in the organism, and which at any time can reveal its existence by inducing fresh syphilitic manifestations; this, at the same time, conferring a relative refractory condition to the skin and mucous membrane against possible reinfection, though reinfection can take place again in tissues which are far from being absolutely sterilised—i.e., free from all specific treponemes. It is not, therefore, in the least an absolute proof when it takes place again that the patient at the time of reinfection is absolutely free from all specific organisms. We may consider it as a possibility, but not as an absolute certainty.

For these reasons it is just as necessary, if not more, for a syphilitic to undergo a fresh course of "remercurialisation" at successive and even distant intervals as it is for anyone of us at times to be revaccinated. It is, at all events, the only means that we possess at present to secure a more or less temporary relative immunity to the syphilitic, and thus guard him against the noxious effects of the treponemes of his infected tissues. For, with our present knowledge, we must candidly admit, that we cannot, and ought not to, give a definite answer to the syphilitic when we are asked by him whether he is cured or not, no matter how energetic, long, and scientific the treatment has been. Personally, I have no hesitation in saying that the more I see of syphilis the less inclined I feel to give a positive answer, lest the patient may come back to me at some future time the unfortunate victim of some severe syphilitic manifestation, and thus be the living contradiction to a too optimistic and scientifically unfounded assertion. This has certainly been the experience, so far, of the vast majority of those among us who have had much to do with syphilis and its special study.

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A CORNEO-CONJUNCTIVAL BRIDGE: A NEW METHOD OF CATARACT EXTRACTION.

BY NEVEN GORDON CLUCKIE, M.B. GLASG.,
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SINCE the introduction, about half a century ago, of von Graefe's method of extracting the lens by linear incision, ophthalmic surgeons as a rule have been content to perform their cataract operations under the conditions laid down by that distinguished surgeon, believing his operation to be the safest and most successful under all circumstances. There are few, however, but will admit that even under the most favourable conditions this method has certain imperfections which expose the result to undesirable complications, the greatest of these being the sudden removal of all nourishment from fully one-third of the cornea, whereby union is delayed and resistance to possible microbic infection is diminished. Many attempts, indeed, have been made to combat these defects, but von Graefe's operation to-day occupies the position that it did on its introduction into ophthalmic surgery. Any improvement which will reduce these risks of infection and the danger of non-union of these delicate structures is of the greatest importance. With that end in view, I desire to bring under the notice of ophthalmologists a modification of von Graefe's operation which has given me highly satisfactory results.

It is well known that the present operation for extraction of cataract consists in making a complete section of the cornea through its upper segment. While successful in many cases, it is liable in others to be followed by disastrous results. The modification to which I would direct attention consists in performing von Graefe's operation up to a point that leaves a connecting flap between the cornea and the conjunctiva about four millimetres broad. Instead, then, of completing the corneal section in the usual fashion, the Graefe's knife is carried further up under the bulbar conjunctiva for from 10 to 12 millimetres and is then withdrawn without cutting through the conjunctiva. We thus have a corneo-conjunctival bridge, which may be broad or narrow, but the broader and longer the conjunctival attachment to the cornea, the greater the chances of success and speedy recovery.

The object in having a large corneo-conjunctival band is to allow of sufficient bulging or gaping of the wound to take place, so that when pressure is applied by a Daviel's spoon on the lower part of the cornea the wound opens sufficiently to allow of the exit of the lens and to close immediately pressure is withdrawn. If the surgeon desires to perform iridectomy at this stage it is best done upwards and inwards; the capsule of the lens may be ruptured either before or after the iridectomy from the temporal side. By these means the operator will feel that he has complete command of the eye, no matter how nervous or restless his patient may be.

I claim that by means of this corneo-conjunctival bridge, the continuity between the cornea and the conjunctiva being maintained, the nourishment of the cornea is not interfered with to the same extent as in the usual method, where complete division is carried out. Moreover, the parts are kept in more accurate apposition, thereby favouring rapid and certain union. From this it follows that the anterior chamber will be re-established in a shorter period.

The risk of the edge of the upper eyelid getting between the lips of the wound during the operation, or the conjunctival flap turning in upon itself and being caught in the wound, as sometimes happens, is under this method impossible. The likelihood of the iris, the vitreous, or the cortical substance being held in the wound is less likely to occur from the fact that the "bridge" gives greater freedom for thorough examination. In sickness from shock, in local and general anæsthesia, the "bridge" would act as a safe barrier in preventing the usual prolapses. Suturing the lips of the wound I have never seen, nor do I believe in, but such would be unnecessary with the "bridge." Corneal astigmatism would be less likely to be produced.

In conclusion, should there be any difficulty in the extraction of the lens, by this corneo-conjunctival bridge method the operator can complete his section, as in the ordinary von Graefe's operation, by the aid of a pair of fine scissors. He can snip through the band of conjunctiva and proceed in the usual way to deliver the lens; but such proceedings in the hands of an expert will be found quite unnecessary. There is no deviation from the usual after-treatment, but I may remark that in cases operated on by this method the eye may be examined minutely with less risk of doing harm. As I have had the best possible results in all my cases, embracing, as they do, glaucomatous cataract, with fluid vitreous, immature and senile cataract, I have every confidence in submitting the foregoing facts and believe that they will be found of the greatest value in cataract operations.

Greenock.

FRAUDULENT DEALERS IN FOOD.—At the Marylebone police-court recently five tradesmen in the district were punished by fines amounting to nearly £20 for offences under the Margarine Act, a penalty of £7 being inflicted in the worst case. From the evidence given and from the observations of the magistrate it may be concluded that the public do not detect that margarine is not butter because it is coloured to resemble it, and that by selling margarine as butter a profit of 50 to 60 per cent. is realised by the tradesman; that legislation forbidding the colouring of margarine would injure "trade" by warning a section of the public who would not buy or care to eat a fat which proclaimed itself as derived from sources other than the dairy; that the extent to which margarine is passed off as butter is considerable, amounting, according to the evidence of a Marylebone inspector, to about seven cases out of every 40 samples taken by him for analysis. The Marylebone borough council is to be congratulated upon its effort to put a stop to this fraud upon the public, and especially so because it is practised chiefly upon the poorer section of the community under its care which can ill afford to swell the profits of dishonest dealers by paying nearly double the value of the wares purchased.

Clinical Notes:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

A CASE OF HENOCH'S PURPURA; LAPAROTOMY; RECOVERY.

BY F. C. PYBUS, M.B., B.S. DURH., F.R.C.S. ENG.,
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THIS case presents features worthy of publication. A girl was admitted to the Royal Victoria Infirmary for severe abdominal pains of an intermittent character, of a week's duration, and the passage of frequent liquid bloody stools. At first sight intussusception appeared the probable diagnosis. On further examination there was no vomiting; the child did not appear very ill. The stools contained no mucus, but were made up of liquid fæces and brownish blood. No tumour could be palpated in the abdomen, which was quite flaccid. Œdematous patches were found at various regions of the body. A diagnosis of urticaria of the mesentery and a portion of the intestine was made. The patient was watched for 24 hours; at the end of this time, no improvement being found, the abdomen was opened, displaying several inches of congested and œdematous small intestine. The abdomen was closed after examining the remainder of the bowel. Some days later a purpuric eruption appeared on the arms and legs, disclosing the true nature of the condition. The notes of the case are as follows.

The patient, who was a girl, aged nine years, was admitted on Dec. 5th, 1907, for pains in the abdomen. A week before admission she came home from school at midday complaining of a pain in the abdomen near the umbilicus and passing into the back. She was given a dose of "composition" and returned to school in the afternoon. The pains were much worse at night. Next day the patient was seen by a medical man and fomentations were applied to the abdomen. The following day the hands appeared swollen but no change of colour was noted. The next day the patient had a dose of castor oil; the swelling of the hands disappeared, but patches of œdema appeared on the shoulders. For the next four days the patient still had abdominal pains, was given further doses of castor oil, and more swellings appeared on the back. On the day of admission several bloody stools were passed.

On admission the temperature was normal and the pulse was 140. The child had flushed cheeks and œdema round the left eye and side of the nose. She was very restless and had diarrhœa. On Dec. 6th she had regular abdominal pains occurring every few minutes, during which time she sat up in bed, cried out, and pressed both hands over the abdomen. Slight œdema was present round the left eye; no other skin lesions were found. There was no vomiting. Nothing of importance was ascertained in the previous or the family history. On examination of the abdomen no distension or peristalsis was seen. There was slight tenderness over the lower half of the abdomen, but no rigidity, mass, or peristalsis was felt. Nothing abnormal was noted per rectum. The urine contained a faint trace of albumin. There was frequent passage of fæces, which were composed of a brown watery basis with altered blood, with no definite mucus, and were not foul-smelling. The patient was seen some hours later and was in the same condition. Solution of morphia (♏iii.) was given.

A diagnosis of urticaria of the mesentery was made, for the reasons mentioned above, and the patient was carefully watched. On Dec. 7th the patient was not quite so well. The abdomen appeared a little fuller and there was thought to be increased tenderness. It was decided to explore the abdomen.

The operation was undertaken by Mr. W. G. Richardson. The patient was anæsthetised with chloroform and the abdomen was opened in the middle line below the umbilicus. On examining the small intestine a section about eight inches long, and situated towards the lower end of the ileum, was found thickened, œdematous, and slightly altered in colour, and clearly marked off from the normal bowel on either side. The corresponding segment of mesentery appeared œdematous. The remainder of the intestine was examined, but nothing abnormal was found. The abdomen was then closed in layers. After the operation the patient was somewhat eased, but the attacks of pain continued of the same character, and the diarrhœa and passage of blood still persisted. A week after the operation a crop of purpuric spots appeared on the extensor surfaces of both legs and forearms, and two days later the eruption had extended from the legs on to the buttocks. The gums were normal. Periosteal swellings were found on the front of both tibiæ. For the next fortnight the purpuric spots continued to appear in successive crops at intervals of a few days. At the end of this time no further eruption appeared and the stools were free from blood. The pains gradually became less severe and frequent and finally subsided. The patient left the hospital apparently well on Feb. 8th, 1908. Subsequent inquiry six months later showed that she was in normal health.

The case shows the difficulty in distinguishing vascular lesions of the intestine from mechanical obstruction, and particularly intussusception. The appearance of the intestine was quite compatible with early intussusception having spontaneously become reduced. The case also illustrates the relationship of urticaria and purpura. There must always be considerable difficulty in diagnosis, seeing that Henoch's purpura and intussusception may co-exist and that a portion of œdematous bowel may be the exciting cause of increased peristalsis and lead to the formation of an intussusception. I have to thank Mr. Richardson for permission to publish this case.

A CASE OF HIRSHBERG'S FEBRILE INFECTION.

BY CLAUDE STONCIPHER, M.D.

IN several scientific papers Dr. Leonard K. Hirshberg of Johns Hopkins has reported a series of infectious febrile diseases caused by other organisms than the typhoid and paratyphoid varieties of bacteria. In a private communication Dr. Samuel Darling of the Ancon Hospital, Panama Canal Zone, also mentions a number of organisms isolated from Hirshberg's febrile disease. He mentions the bacillus enteriditis, B. lactis aerogenes, and several varieties which cause diseases in animals. Hirshberg in his classic description mentions the following as features of the disease: (1) Failure of the blood to agglutinate with the usual organisms such as B. typhosus, B. coli, and B. paratyphosus; (2) absence of relapses; (3) absence of hæmorrhages; (4) absence of phlebitis; (5) absence of rose spots; (6) absence of splenic enlargement; (7) absence of mortality; (8) absence of length period of incubation and prodromes; (9) presence of constipation except when the patient is fed upon raw milk diet; and (10) normal blood picture as regards hæmoglobin, erythrocytes, and leucocytes. The following case is reported through the courtesy of Dr. Henry Flood, in whose service it occurred.

An unmarried female, aged 22 years, was admitted to hospital on June 4th, 1909. Her health had been fairly good, and the personal history was negative except for an attack of measles and tonsillitis. The present illness began five days previously, when she missed her period, and awoke on the following day feeling languid. On June 2nd she complained of headache and constipation. Her mother summoned a physician, who said that the temperature was 104° F. On admission the patient had no appetite, felt languid, complained of severe, dull headache, and had griping pains in the abdomen. She was well nourished, the physical signs were normal, the blood examination was negative, and no abdominal tenderness or rigidity was noted. The facies was flushed and dull. The tongue was dry and heavily furred with a white, patchy coat. The temperature was 102·6°. There was no increase in the splenic or the liver dulness, and these organs were not palpable. Agglutination was absent with the five organisms named below. No rose spots were present, although one consultant insisted upon a provisional diagnosis of typhoid fever. A milk diet started a diarrhœa which lasted five days—i.e., until the milk was stopped. The temperature kept near 102·2° for 17 days; then it slowly fell and on the eighteenth day was normal. Recovery was uneventful. Agglutination tests were made with two 24-hours old typhoid cultures and with one bacillus lactis aerogenes, one paratyphoid, and one colon culture.

This case is particularly interesting, because it accords exactly with the 27 cases so far reported of Hirshberg's infection and absolutely fits in with none of the other fevers.

Baltimore, Maryland, U.S.A.

Reviews and Notices of Books.

Severest Anæmias: Their Infective Nature, Diagnosis, and Treatment. By WILLIAM HUNTER, M.D. Edin., F.R.C.P. Lond.; Physician and Lecturer on General Pathology and Morbid Anatomy, Charing Cross Hospital; Physician to the London Fever Hospital. Vol. I., with historical schemes, charts, and plates. London: Macmillan and Co., Limited. 1909. Pp. 226. Price 10*s.* net.

THE difficult subject of the causation, pathology, and treatment of the grave and severe forms of anæmia is one which Dr. William Hunter has made peculiarly his own, and we have on more than one occasion expressed our admiration for the services he has rendered to pathology and to practical medicine by his studies, many of which have appeared in our columns.

In the volume before us he gives a detailed historical account of the various opinions which have been put forward in regard to the more profound degrees of anæmia, particularly that form which has usually been called in this country pernicious anæmia, a name which Dr. Hunter strongly deprecates and which he urges should no longer be employed on the dual grounds of the confusion which exists in regard to its connotation and of the effect of such a term upon the patient as applied to the condition from which he is suffering. He traces much of the confusion to the well-known paper of Biermer published in 1871, in which the term progressive pernicious anæmia was first used. This term was afterwards applied, especially by German authorities, to a heterogeneous collection of grave anæmias with more or less obvious causes, among them being included the peculiar idiopathic anæmia described by Combe in 1822 and by Addison in 1849. Dr. Hunter establishes the unquestionable priority of the English description of this form of the disease. The general trend of his own work carried out during the past 23 years has been to establish this form as a nosological entity, to which he would now apply the name of Addisonian anæmia. He regards it as a specific infective disease with a typical mode of onset and a definite site of infection. He has also separated a group of severe and progressive anæmias due to the influence of septic conditions which he distinguishes as septic anæmias. Those he is to deal with in the second volume.

Dr. Hunter's contention in regard to Addisonian anæmia is, in brief, that it is a specific infective disease of hæmolytic nature, and that in addition to the anæmia the glossitic, gastro-intestinal, hæmolytic, febrile, and nervous features which he describes are important and characteristic and are the result of the infective agent, and are not to be regarded as secondary effects of the anæmia. Dr. Hunter's work on the hæmolytic changes in this form of anæmia is too well known and recognised to need any discussion here; the object of his more recent work is to establish the infective character of the glossitic and other lesions associated with Addisonian anæmia. The glossitis he describes is, he maintains, not due to oral sepsis, although it is aggravated by it. Oral sepsis being so frequently present in Addisonian anæmia leads to a complication of that condition by an intense "septic anæmia" which constitutes a grave handicap to the patient. Dr. Hunter states that the effects of the two conditions upon the bone marrow are entirely different. The Addisonian anæmia leads to hyperplastic and regenerative changes, while the "septic anæmia" is depressant to these functions and leads to aplastic changes. He urges that if the conditions leading to the septic complications are removed the prognosis of Addisonian anæmia is improved. The glossitic changes are described as of varying intensity in different cases: sometimes of an acute and subacute inflammatory character, followed later by degenerative and atrophic changes; at other times more chronic. This glossitis may be one of the chief sources of complaint on the part of the patient, and may be characterised by great tenderness. It is an early rather than a terminal feature, and may be an early indication of relapse. In three cases examined bacteriologically the streptococcus longus was isolated in pure culture. The changes in the stomach are a gastritis leading eventually to gastric atrophy, while in the intestine there may be a marked croupous enteritis, patches of congestion and catarrh, follicular enlargement, and patchy colitis. Several plates illustrate the macroscopic and microscopic appearances of these various lesions. Several tables are given detailing the incidence of the glossitic and gastro-intestinal lesions, but we cannot but feel that Dr. Hunter's account would have been of greater value if more detailed descriptions of the glossitic lesions had been given.

He next discusses in detail the pathological changes in the bone marrow, which have been so clearly and carefully studied by Professor R. Muir. On the basis of the changes in the bone marrow and of the characters of the blood, more especially as regards the occurrence of nucleated red corpuscles, Ehrlich has classified anæmias into normoblastic and megaloblastic, the former including the simple anæmias, the latter the more severe—practically, indeed, the whole group to which in Germany the name of Biermer's anæmia is applied. On this view the changes in the bone marrow are regarded as primary, and Addisonian anæmia included as one form—the pathological basis being a megaloblastic degeneration of the bone marrow. This view Dr. Hunter most strongly opposes. He regards the bone marrow changes as reparative and as a secondary result of the hæmolytic processes which his own observations have established. He points out that this classification of Ehrlichs, based on purely hæmatological considerations, simple and attractive as it is, breaks down in practice, since it groups together anæmias of widely different clinical characters and of fundamentally different causation. One of the merits of Dr. Hunter's work is that he considers the anæmias from the etiological and clinical standpoint rather than from the purely hæmatological point of view like the Ehrlich school, though it may be objected with justice that in his book he hardly pays enough attention to the morphological characters of the blood as revealed by blood examination during life. In regard to his main thesis, it is difficult to resist the conclusions that the form of severe anæmia described by Addison is a well-defined and specific disease, and that it has to be differentiated from a group of septic anæmias with which it may be confused and with which it is not infrequently associated.

Having thus expressed our admiration for the character of his work and for the logical manner in which he has developed his views, we may be allowed to cavil at his nomenclature. The title "severest anæmias" strikes us as a peculiar and somewhat inelegant one, as it is difficult to see the necessity for a superlative in nomenclature. Moreover, in regard to the term "Addisonian anæmia" we have always strenuously opposed the application of personal names to pathological conditions. The charts which are liberally distributed through the book are not always easy to interpret, and in the polemical parts of his work Dr. Hunter sometimes indulges in needless repetition, not to say reiteration. We have no other criticism to offer, and it should be added that he gives a bibliography at the end of the volume which should be of great value to workers at this subject, and which adds the utility of a highly important contribution to English medicine.

The Principles and Practice of Medicine. By WILLIAM OSLER, M.D. Oxon., F.R.S., F.R.C.P. Lond., Regius Professor of Medicine, University of Oxford. Seventh edition, thoroughly revised. London: Appleton and Co. 1909. Pp. 1143. Price 21*s.* net.

THE seventh edition of this well-known and excellent text-book has now been issued. The author remarks in his preface that the three years that have passed since the last edition appeared have been rich in additions to the knowledge of disease and its treatment, particularly in connexion with the acute infections. In this new edition all the more important advances have been incorporated—the epoch-making discoveries in syphilis, the work of the New York Pneumonia Commission, the triumph of the British army and navy surgeons in stamping out Malta fever, the splendid work of Gorgas and his colleagues at Panama, the studies of Strong and his associates in the Philippine Islands, the experiences of the last epidemics of cerebro-spinal fever in New York, Belfast, and Glasgow, and the all-important contributions on "carriers" in the acute infections which are likely to exert a marked influence on prophylactic medicine.

The section on parasites has been carefully revised and has received many additions. In the chapters on the diseases of special organs much new matter has been incorporated, including a new section on acute dilatation of the stomach, a complete revision of the subject of peptic ulcer in the light of recent surgical work, new sections on diverticulitis, parotitis, pancreatic and adrenal insufficiency, œdema of the lungs, Banti's disease, and polycythæmia. In the section on diseases of the nervous system the studies of Marie and his pupils upon aphasia, and the new work on spastic paraplegia, Oppenheim's disease, posterior meningitis, and other conditions have been added.

The earlier part of the section on lobar pneumonia has been rewritten. The remarks on the relation of trauma to this disease are interesting. Professor Osler states that pneumonia may follow directly upon injury, particularly of the chest, without necessarily any lesion of the lung. Stern's observations on this subject are quoted. This observer described three clinical varieties: first, the ordinary lobar pneumonia following a contusion of the chest wall; secondly, atypical cases, with slight fever and not very characteristic physical signs; and thirdly, cases with the physical signs and features of broncho-pneumonia. The paragraphs dealing with the history, etiology, modes of infection, and predisposing causes of diphtheria have been rewritten, and among other important additions the presence of the Klebs-Löffler bacillus in non-membranous angina and in healthy throats is duly discussed.

The remarks on the modes of infection of pulmonary tuberculosis have been recast. Infection by means of the intestines receives the attention required by such an important subject. The researches of Behring, Ravenel, and others are quoted, which dispose of the objection raised by Koch that if infection through the milk of tuberculous cattle were common, primary intestinal tuberculosis should be more frequent. Recent experiments, however, have shown in a striking manner that the lungs act as filters for particles absorbed from the intestines, and the investigations mentioned above have demonstrated that pulmonary tuberculosis can be produced in animals by feeding experiments, although the intestinal surface itself might remain intact.

In discussing the etiology of hypertrophic emphysema Freund's theory is mentioned; this observer maintains that a primary disease of the costal cartilages—a chronic hyperplasis with premature ossification—can bring about gradually a state of rigid dilatation of the chest, to which emphysema is secondary. Recent observations make it probable that there is a group of cases in which such changes occur in young persons, particularly in the cartilages of the first three ribs.

It will thus be seen that this edition of Professor Osler's text-book has been brought fully up to date. It forms one of the best books for students preparing for their final examinations, and also a valuable work of reference for practitioners.

Southall's Organic Materia Medica. By JOHN BARCLAY, B.Sc., F.C.S. Revised and enlarged by ERNEST W. MANN. Seventh edition. London: J. & A. Churchill. 1909. Pp. 376. Price 7*s.* 6*d.* net.

WHEN a book has reached a seventh edition the task of the reviewer is comparatively light; it is obvious that the original intent of the author has been duly appreciated, that the work has found its public, and that the time for detailed criticism has long been passed. But for these considerations there might be a strong temptation to investigate seriously how far this book, which we learn from the title page is designed for the use of teachers, pharmaceutical and medical students, chemists, druggists, and others, was likely to be of any particular service to any of these classes. To educate the teacher is at all times a praiseworthy object, but to place this book in the hands of the average medical student might cause some dismay, since the arrangement of material entails the separation of much that might be more conveniently grouped together. Thus by dealing separately with all seeds, roots, leaves, flowers, &c., there is troublesome repetition of many considerations connected with composition and uses, which do not depend upon the part of the plant employed. It might also be suggested that at the present time there is but scant advantage in a classification based upon the special part of plants employed in medicine, since, for example, there is no resemblance in the chemical composition, the uses, or the preparations of the different roots, woods, or leaves. In fact, this system of classification seems to be a survival from the days when examination questions favoured cram rather than intelligence. But as a compilation dealing with the more important animal and vegetable drugs employed in medicine this work will probably be useful as a book of reference; it avowedly includes almost *verbatim* official descriptions taken from the British, United States, and Indian Pharmacopœias, and the work of condensation has been effected judiciously. There is an admirable index, and the different type employed facilitates ready reference. The limitation to animal and vegetable drugs must be remembered; the term "organic" is not employed in a chemical sense; synthetic carbon compounds are not included in the scope of this work.

A Study of the Bacteriology of Drinking Water-supplies in Tropical Climates. By Major WM. WESLEY CLEMESHA, M.D. Vict., D.P.H., I.M.S., Acting Sanitary Commissioner for Madras. Assisted by Assistant-Surgeon I. SEETHAPATHY AIYAR, L.M. & S., Senior Laboratory Assistant, King Institute, Guindy; and V. GOVINDARAJN MUDALIYAR, B.A., Junior Laboratory Assistant, King Institute, Guindy. Madras: Government Press. 1909. Pp. 346. Not for sale.

ANYONE who has had anything to do with the bacteriology of water in India knows well that outside the special water-supplies of cantonments most of the waters which are used, more especially by the rural population, are loaded with fæcal contamination from either man, cattle, or goats. It is hardly credible that natives are so backward in their knowledge of sanitation as to raise no objection to throwing cholera corpses into the only available water-supply of a large village. Frightful epidemics of cholera occur amongst the natives at times, and dysentery is always present to some extent. When we consider the foul water drunk by most

natives we cannot but wonder that the mortality from water-spread diseases is not higher. This circumstance is well brought out by Major Wesley Clemesha in this study of the bacteriology of the drinking water-supplies in tropical countries. Of no less than 18 towns in Madras that are all provided with a protected supply the water on analysis was so bad that no medical officer of health in Europe would pass it as fit for human consumption, and yet a reference to the health statistics of these towns shows that the people (natives) are distinctly favoured as compared with those in rural areas, and that their health is, broadly speaking, satisfactory. There has been little or no detailed research on the bacteriological question as it affects water-supplies in India, and up to the present date the various workers who have made bacteriological examinations have either accepted the European standards as applicable, or have individually modified them to suit what they considered to be local requirements. The method adopted by Major Clemesha is a modification of one described by Dr. A. MacConkey in his work on lactose fermenters[1] and in subsequent papers. It may be briefly stated that by using saccharose and dulcit he divides all lactose-fermenting organisms into four groups and by further fermentations and other tests the individual species are studied separately. In time we may be able to assign a relative value, as an indicator of pollution, to each of these different organisms, and it is hoped by Major Clemesha that the publication of his work will induce officers in other parts of India to carry out their water analyses on these lines, so that comparable results may be obtained. He gives detailed accounts of the methods adopted as a standard in his laboratory at the King Institute, Guindy.

In Chapter VIII. the effects of tropical sunlight on fæcal organisms in water are well discussed, and the results of a large series of experiments are described in detail, the following general conclusions being arrived at: (1) That the sun has a very powerful action in destroying all fæcal organisms in water, particularly when they are "naked" and not surrounded by mucus derived from the intestine; (2) that all fæcal organisms do not possess the power of resisting the action of sunlight to an equal degree; (3) that it is possible to divide fæcal organisms with a reasonable degree of accuracy into groups according to their resistance to sunlight; and (4) that as the action of the sun is more powerful in destroying the fæcal organisms on the surface layers of a large volume of water, it is more practical for the outlet from a reservoir to be near the surface than from the lower layers.

The relationship of cholera to water-supplies is discussed in Chapter XV. It is noted that the bare cholera figures in any report are not of great value unless certain facts as to the origin of the disease are explained. Thus, although it is true that cholera is spread chiefly by a polluted water, there is no doubt whatever that other methods of transmitting the disease do exist; cholera, for instance, like enteric fever may be disseminated by flies or imported. The principal factor in importation into stations in India are the numbers of pilgrims, beggars, and mendicants who visit the temples in certain districts. The index of purity of any given water-supply of a locality can, however, be roughly gauged from the following returns: (*a*) presence or absence of cholera; (*b*) the prevalence of diarrhœa and dysentery in children under five years of age; and (*c*) the presence of dysentery and diarrhœa in the community as a whole.

Part II. of the work gives separate analyses of the various water-supplies of towns in the Madras Presidency divided into three groups: (1) those towns supplied by water derived from rivers; (2) those derived from impounded surface waters; and (3) those derived from wells or springs. The whole bears evidence of careful laboratory research carried out under the unfavourable climatic conditions of Southern India, and these have only to be experienced by any worker to be appreciated.

[1] Journal of Hygiene, July, 1905.

LIBRARY TABLE.

The Health of the Nations. (Compiled from Special Reports of the National Councils of Women.) Aberdeen: Rosemount Press. 1909. Pp. 191. Price 1*s.*—The excellent work performed by the International Council of Women during its comparatively short existence of 29 years has been of benefit not only to the women of the 22 nations affiliated in the International Council but also to the community at large. In no respect will their influence be more useful to the nation as a whole, as well as to women, than in their recent work in connexion with public health. At the request of the President, the Countess of Aberdeen, the International Council of Women has, during the quinquennial period 1904 to 1909, prepared reports of matters concerning the public health in the respective countries. The Countess of Aberdeen set the lines upon which the reports should be drawn up, desiring special reference to (1) care of infants and children; (2) housing of the people; (3) conditions under which working women carry out their work; and (4) measures in force against tuberculous disease. The practical work done for the prevention of tuberculosis by the Countess of Aberdeen during her residence in Ireland is of course well known to our readers. The health reports submitted by the various national councils have been compiled by the corresponding secretary, Mrs. Maria Ogilvie Gordon, D.Sc., Ph.D., and are now obtainable in book form for 1*s.* The reports from the 18 countries form most interesting reading, and have been arranged for easy reference, Mrs. Gordon having translated or condensed where she deemed it advisable to do so. The book also contains the address delivered by the Countess of Aberdeen at the last meeting of the International Council of Women held at Geneva in 1908; and Mrs. Gordon has written a concise and descriptive account of the formation and growth of the International Council of Women, which completes a most interesting record.

Lehrbuch der Magenkrankheiten für Aerzte und Studierende. (*Text-book of Diseases of the Stomach for Practitioners and Students.*) By Dr. HANS ELSNER. Berlin: S. Karger. 1909. Pp. 490. Price M.12.—The author tells us in the preface that his book is intended to take a middle place between detailed systematic treatises on gastric diseases and short practical text-books. On the whole it resembles the former rather than the latter. It is divided into a general and a special section, the former extending to 200 pages. In this a full account is given of the methods of examination which are employed in disorders of the stomach, including the chemical tests which are given at considerable length. In the second part the order of sections is: gastritis, achylia gastrica, superacidity, gastric ulcer, erosions, hypersecretion, cancer, disorders of motility and dilatation, gastroptosis, nervous dyspepsia, and, finally, a small group of functional defects. The opinions expressed are, on the whole, conservative and not very novel. No allusion is made to the view which is coming into prominence in this country as to the unreality of many of the cases of gastric ulceration diagnosed in women, even when hæmoptysis is present. In the treatment of cancer Dr. Elsner believes that there is no future before extensive operations, such as

total and subtotal gastrectomy. Pylorectomy he admits as useful, and likely to prove still more beneficial in the future. The book is well got up and adequately illustrated, and is written in an agreeable style. It is a useful and readable exposition of sound medical teaching in the field with which it deals.

Notes on Dental Anatomy. By G. A. PEAKE. London: Claudius Ash, Sons, and Co. 1908. Pp. 104.—These are the notes of Mr. Peake's lectures, and they contain an enormous mass of information about the teeth. The highly condensed information is generally sound, except that the author's ideas of the development of the jaws are a little archaic, and it is perhaps unwise to call the newt and frog reptiles as he does on p. 26. Mr. Peake says that the notes have been published at the request of dental students, but we doubt the wisdom of granting the request. Students are much too fond of "potted knowledge," and few can retain it beyond the date of an examination. A book twice as long, containing half the facts, would have been more valuable.

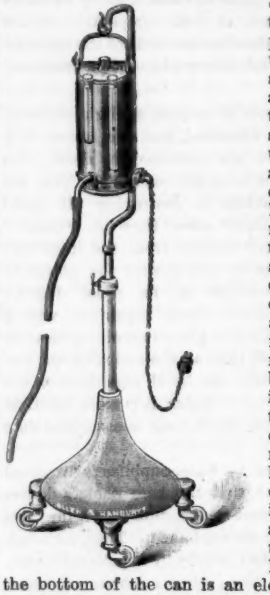
Ueber das Verhalten hämolytischer Serumstoffe beim gesunden und kranken Kind. (On the Quantities of Hæmolytic Substances contained in the Serum of Children in Health and Disease.) By Dr. ERNST MORO, Privat-docent and Oberarzt in the Children's Clinic of the University at Munich. Wiesbaden: J. F. Bergmann. 1908. Pp. 100. Price 3*s.*—It is well known that the process of hæmolysis n an immunised animal is carried out by two separate substances—the immune body (amboceptor or copula) and the complement. Dr. Moro endeavoured to ascertain the amounts of each of these substances in the blood of children. He found that in new-born infants the immune body by which foreign blood corpuscles are attacked is present only in small amount, and that there is also a smaller quantity of the complement than in adults, the actual amount varying in different individuals at all ages. The most interesting part of the pamphlet is, however, the comparison of the amounts of complement present in the serum of different classes of atrophic children. The author found that in infants who suffered from atrophy due to inability to assimilate artificial food the amount of complement was very small, whereas in others suffering from alimentary intoxication the amount was actually increased, as in infective diseases. Injection of normal saline solution leads to an increased formation of complement in patients who have good powers of resistance. The failure of this increase seems to be a sign of bad prognosis, and may perhaps prove to be a test possessing some clinical value. Further studie are in progress as to variations in the amount of immune body present in different diseases.

Invalid Cookery: a Handbook of Cookery for the Sick Room. By Miss PEARSON and Mrs. BYRDE. London: W. Thacker and Co.; Calcutta: Thacker, Spink, and Co. 1909. Pp. 39. Price 1 rupee. 1*s.* 6*d.*—Take it all round this is an excellent little book. We are particularly pleased to note the sensible remarks about water for the sick with which Part 1 opens. Even in these modern days every medical man will bear witness to the widespread delusion that cold water is harmful for a sick person, and Miss Pearson and Mrs. Byrde have done well to point out that water is most beneficial. In the recipe for barley water, too, they have done right to mention the fact that the expression "barley water" means at least three different kinds of fluid. We notice that in the recipe for white wine whey the authors are led into looseness of expression, for they say that "all the solids of the milk are removed in the curd." This, of course, is incorrect, for the whey contains salts and sugar. This error should be corrected in a future edition. The recipes for convalescent cookery are for the most part admirable, but we do not think that the directions given for making an omelette on p. 36 would result in the production of a really good omelette. One dessertspoonful of butter would not be enough for two eggs, and the stirring about in the pan would result in a mixture much more like buttered eggs than an omelette. But the art of making an omelette is not to be learned from a book; to describe the proper method of cooking one is almost impossible in writing, a practical illustration is always wanted.

New Inventions.

AN APPARATUS FOR CONTINUOUS PROCTOCLYSIS.

THE plan of continuous administration of warm saline solution by the rectum, introduced by Dr. J. B. Murphy of Chicago is in my opinion one of the greatest advances in abdominal surgery which have been made within recent years. Its routine adoption leads, I believe, to more rapid, and certainly to more comfortable, convalescence after cœliotomy, and its beneficial effects in cases of general septic peritonitis would have surprised me had I not been prepared for them by hearing from Dr. Murphy's own lips of the wonderful results which he has obtained in the treatment of this serious condition since the adoption of the practice of continuous proctoclysis. Success in using the Murphy method depends on attention to detail, and the two most important points are: first, the regulation of the flow from the supply-can by gravity alone, and not by constriction of the delivery tube; and, secondly, the maintenance of the saline at a constant and appropriate temperature. To obviate the latter difficulty I have had an apparatus made which does away with the necessity for constant supervision. The apparatus consists of an electro-plated douche can which holds about five pints. In the front of the can are a thermometer and a gauge glass, by the side of which the can is graduated in half pints, so that the amount of saline entering the rectum can be readily estimated. The saline leaves the can through a delivery tube with a half inch bore, to which is attached three feet of rubber tubing connected with a large rectal tube. Under the bottom of the can is an electric heater, which can be connected with any electric supply of suitable voltage by means of a flexible cord and wall plug. The can is suspended on an adjustable stand, mounted on castors, so that it can be readily wheeled up to the bedside. I have found by experiment that with a ward temperature of from 65° to 70° F. the solution in the can must be kept at a uniform temperature of 106° in order to insure that the saline enters the rectum at a temperature of from 99° to 100°. The electric heater is so made that if the saline solution is put into the can at a temperature of 106° the temperature remains almost constant so long as the current is switched on.



The apparatus, which has been made for me by Messrs. Allen and Hanburys, answers its purpose admirably and can be left for several hours without any attention.

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THE LANCET.

LONDON: SATURDAY, OCTOBER 9, 1909.

The Enzyme Treatment of Cancer.[1]

HAD the enzyme treatment of cancer been able to achieve any of the exploits attributed to it we should expect that the outpourings in the press on both sides of the Atlantic about three years ago would be by now finding justification in the publication of properly authenticated therapeutical triumphs. But all that has followed justifies both the scepticism originally accorded to the statements of the rival discoverers of the treatment and the verdict which quickly followed, that trypsin, whether exhibited with or without amylopsin, is not a cure for cancer. The lapse of time has shifted the attention of those interesting themselves in the alleged relation of ferments to cancer from "trypsin" to "antitrypsin," through the agency of which attempts are being made to obtain a quicker or more certain diagnosis of the presence of the disease; but unfortunately the anticipations aroused by the earlier positive statements of the diagnostic value of what has been styled the "antitryptic" index have been damped by the establishment of the fact that an increase in the power of the serum to neutralise the activity of trypsin is not specific to cancer, but common to many infective diseases, the phenomenon being explained as coincident with the disintegration of leucocytes and liberation of their contents. It would appear that in the history of cancer the chapter on the vogue of the ferments and anti-ferments will be an exposition of the danger of hastily applying in practical medicine the nebulous notions born of imperfectly assimilated knowledge. Less is known about the inhibition of ferment action than about ferment action itself, and the flight of the enthusiasts from the realm of the ferments to the realm of the anti-ferments appears to be a portent that of all things caution is needed in appraising the value of any positive statements which may be made with regard to the bearing of this line of inquiry either on the treatment or the diagnosis of cancer.

We do not ignore the activity centring round ferments and anti-ferments in their supposed bearings upon cancer; rather would we emphasise the seriousness with which all investigations of the kind should be undertaken, and the need for their conduct or control by persons properly equipped for a most difficult study, beset with more than the average number of pitfalls. Once a positive statement finds currency of the value of any alleged remedy it is difficult or impossible to banish it from practical therapeutics. The patient will insist upon trying it in spite of the protests of the medical attendant. Thus trypsin has come to take a place in the already too lengthy list of alleged cures for cancer. Although it is as useless as any other reputed substitute for surgical treatment, it may hardly be dislodged from its place in the lay mind until the progress of investigation reveals to the physician and surgeon rational substitutes for, or adjuvants to, operation. With regard to such alleged remedies it is essential, however, that the medical profession should have clear and sound views as to why they have been condemned as useless. The possession of this knowledge and of the convictions based upon it, on the part of those who may be importuned to employ such remedies, is of as great importance to the practitioner himself as it is to his patients. For this reason we have only the highest praise for a painstaking and elaborate report on the systematic submission of 100 cases of cancer to "the enzyme treatment of cancer" during the past three years in the New York Skin and Cancer Hospital. Undeterred by the discredit into which the methods of some of its exponents had brought the theory, Dr. WM. SEAMAN BAINBRIDGE, the author of this report, has fulfilled his undertaking to give the treatment a fair trial, both in operable and in inoperable cases. Many of the patients have been followed to their homes, and nurses provided, after leaving hospital, while everything possible has been done to make the clinical and pathological observations complete. The list of patients and the account of the results given by Dr. BAINBRIDGE are records of the miserable failure of the treatment; but they are monuments of industry which will be of service in the interests of sufferers from cancer. We recommend the perusal of this report to all who may have to inform themselves of the value of the treatment of cancer by trypsin and amylopsin.

We would point out as a proof of the straightforward character of the enquiry that throughout touch seems to have been kept with Dr. J. BEARD, whose views were more particularly being put to the test, and everything was done to meet the requirements of the modifications he suggested in the treatment. Of general interest is the fact that the injection of the most powerful solutions of trypsin is not followed by toxic symptoms assignable to the products of digestion of tissues. As much as 100 minims of the strong solution (special quadruple ×) could be given for days without untoward effects. Dr. BAINBRIDGE adds: "From this it will be seen how absurd were some of the earlier claims of 'cures' as well as the strange symptoms and 'terrific' results from the small doses employed." The amelioration of symptoms was in some cases as effectively induced by the injection of sterilised distilled water. No wonder the report concludes that trypsin does not check the cancer process, does not prevent metastases—in short, does not cure cancer. The negative result of the investigation is to be regretted, but the courageous persistence in its conduct in the face of discouragement, and the care with which the tests have been carried out in all particulars by Dr. BAINBRIDGE for the New York Skin and Cancer Hospital, may serve as a model to other institutions. A negative result of this kind has the great value we have indicated, in that the medical profession have before them chapter and verse for their placing no faith in trypsin and none in persons who persist in advocating its use by repeating stories of alleged "cures"

[1] Scientific Report on Investigations with reference to the Treatment of Cancer, No. I., New York, 1909.

when, as a matter of fact, the patients referred to have been proved to have died from the disease. Trypsin has no selective action for cancerous tissue. If when injected into the tissues it is liable to bore its way into a large vessel, thereby causing immediate death from hæmorrhage, it is not a substance which should be lightly administered, even when called for by the sufferer.

The Red Cross Ambulance Scheme for the Territorial Army.

A SCHEME for the organisation of voluntary aid in connexion with the military medical service of this country in case of invasion has recently been issued by the War Office. The principal points were summarised in THE LANCET of August 21st, p. 569. We apprehend that this scheme will be welcomed by all members of our profession who are animated by a real spirit of patriotism—that is, we hope, by every one of us—by all who feel that it is not the duty of a special class of persons only to take their part in the defence of the kingdom, but that everyone without exception, who is in a state of physical fitness, should do what in him lies to safeguard "this blessed plot, this earth, this realm, this England," from attack. We can well believe that all the medical men who served in the Volunteers of a few years back, in whatever capacity, were actuated by such feelings, for there was certainly little inducement of any material kind for our profession to serve in that force, either with the Volunteer battalions of line regiments or with those select and scanty bodies, the Royal Army Medical Corps Militia, or Volunteers, on whom no sunshine of official favour ever shone. The contrast between the old order of things and the recently issued comprehensive scheme of organisation is most marked. We now have a well-designed system, under which any medical man who is sound in wind and limb may find a position ready to his hand, in which he can render service to his country without any serious inroad on his own professional duties or well-earned leisure.

In this scheme it is taken for granted that there will be need for voluntary aid for the sick and wounded in the event of warlike operations being conducted within our shores, and that this necessity is now fully recognised by the public; it is also acknowledged that there is a tendency on the part of societies formed for the purpose of providing this aid (as for most purposes, benevolent or otherwise) to act independently of one another—that is, to overlap and interfere with each other's work; and it is laid down that "efficiency cannot be attained unless all voluntary aid be coördinated." The scheme, accordingly, is formulated on this main principle, drawing some of its details from the Red Cross Society of Japan and the Voluntary Aid Companies in Germany, and is therefore to some extent the outcome of practical experience that has been already obtained The county system of organisation (being the system upon which the Territorial Force is organised) has been adopted. The county associations and the local branches of the British Red Cross Society will provide the "voluntary aid detachments," the duties of which will be to make use of local resources for improvising accommodation and transport of wounded, and for arranging for their temporary care and treatment until they reach the general hospitals. In the medical organisation of the regular army, the "Expeditionary Force," provision is, of course, made for care of the sick and wounded in the field by a regimental medical service, and in hospital by an establishment of "stationary" and "general" hospitals. The sick and wounded are conveyed from the field to the hospitals at the base or on line of communications by field ambulances and by a special mobile unit, the "clearing hospital," which receives and cares for them until they can be conveyed to the regular hospitals, by whatever means of transport—road, rail, or water—that is available. In the organisation of the Territorial Force, however, no *personnel* for the "clearing hospitals" is provided; nor is there any provision of *personnel* for the "stationary" hospitals—temporary hospitals, that is, along routes of evacuation; nor have buildings been chosen fitted for use as "general hospitals." This incompleteness in the scheme was intentional, as it was considered that in these particular departments of medical administration a suitable field exists for the employment of voluntary aid; and, in fact, that "it was eminently to be desired that every opportunity should be given to the British Red Cross and other societies of taking a share in the work appropriate to those who in all civilised countries seek to mitigate the lot of the sick and wounded in war." As everyone is aware, there always has been a very keen desire on the part of the public to alleviate the sufferings of the troops during campaign operations; it is also known to very many that, for one cause or another, the large sums of money subscribed have not infrequently been to a great extent wasted through want of coördination between the official military and the philanthropic lay administrators. The new organisation now comes in to provide this coördination that has been so deplorably absent in the past. The County Association is charged with the responsibility of the organisation of voluntary aid in this country by the formation of "voluntary aid detachments" through local branches of the British Red Cross Society, each county group of these detachments being under the command of a county director. The training of these detachments will be directed towards the work to be done and will include such things as improvisation of stretchers, preparation of country carts for reception of wounded, conversion of farmhouses, public buildings, and, possibly, whole villages or small towns into temporary hospitals, organisation of evacuating stations, arrangements for transport of sick and wounded, and provision of the material and *personnel* required. It is obvious that for any degree of efficiency to be attained in such an organisation a great deal of work is necessary on the part of the voluntary aid detachments that are to be formed. We believe, however, that there is sufficient patriotic spirit in the medical and nursing professions to provide the required number of physicians, surgeons, and nurses; moreover, it is to be acknowledged that the authorities have shown a real desire to make the conditions of service as little onerous as possible. Thus, each battalion of the Territorial Force has two medical officers attached to it: one is all that is needed to do the work, but two are allowed for, so that by relieving each other the private practice of

each may be interfered with as little as possible. Again, as the ordinary work of a civilian hospital is very similar to that of a military general hospital, it is not intended to call up the medical and nursing staffs for duty in peace time; and the number of these staffs enrolled is much in excess of mobilisation requirements, so as to cause the minimum of interference with the ordinary routine duties of each. This shows a reasonable attitude on the part of the military authorities and an absence of red tape that deserves the fullest recognition.

The scheme for the organisation of voluntary aid in connexion with the military medical service of this country is so extensive and complex that it is almost impossible for anyone, not actually engaged in military medical administration, fully to realise the necessity or otherwise of the several items that go to make up the whole. The county associations are to be prepared to have their general hospitals fully equipped and ready to receive patients in one week from the date of mobilisation. The minimum equipment required is comprised in 45 schedules, extending over 25 foolscap pages, all but two having double columns; the total number of separate items amounts to about 3000. It seems hardly hypercritical to suggest that such an elaboration of detail is unnecessary, and that in a time of national emergency, when England is actually invaded, such things as pepper-casters (Schedule 1), backgammon boards (Schedules 6 and 10), soup tureens (Schedule 18), and art serge window curtains (Schedule 29) might surely be dispensed with. Of the scheme generally, as far as we are able to judge from our own standpoint, we feel bound to express hearty approval; and we commend it to the profession throughout the country as a comprehensive, workmanlike, and feasible scheme of organisation of voluntary medical aid in time of national emergency, which should meet with a ready response from every patriotic member of our profession. Some labour and time must be given, some deduction made from the leisure or recreation, scanty enough as these are already for most of us in actual practice. But the arrangements appear to have been designed expressly to make no greater demands on those who respond to the call of the national need than are absolutely necessary, and this reasonable spirit will, we believe, be met by a like spirit of sober, determined, self-sacrificing patriotism on the part of all ranks and branches of the medical profession.

"Nurture or Nature."

UNDER the very suggestive title of "The Relative Strength of Nurture and Nature," a lecture by Miss ETHEL M. ELDERTON, Galton Research Scholar, on the respective operations of these two forces in promoting or restraining the development of children, has just been published in the Eugenics Laboratory Series of the University of London, and furnishes a convenient illustration of the work which is being conducted in the Galton Laboratory, and of its probable practical value in assisting us to deal with some of the pressing problems of to-day.[1] The object of Miss ELDERTON'S inquiry was to ascertain whether the unsatisfactory conditions of physical strength and of intelligence displayed by a large proportion of what may be called "slum children" are mainly due to their surroundings or to their parentage; and she commences her discourse by some apt illustrations of the highly complex character of the problem, and of the difficulty of discovering the originating factor. An analogous difficulty, indeed, was stated many years ago by the author of the delightful little apologue entitled "The Cat's Pilgrimage,' a story which relates how a domesticated pussy, tired of luxurious surroundings, went forth to investigate for herself the larger world around her. She lost herself in a wood, was desperately tired and hungry, and night was coming on. No saucer of milk could be discovered in any direction, but presently she saw an owl sitting on a bough, and she appealed to the bird of Minerva for aid and consolation. The owl advised her to seek refuge in philosophy, and declared that she herself was at the very time finding consolation under trouble in meditating upon the problem "Which came first, the owl or the egg?" Pussy objected that the problem was necessarily insoluble, but was promptly answered that therein lay its principal advantage. Miss ELDERTON points out that we might discover that the mentally and physically fitter child comes from the cleaner and less crowded home, and might therefore argue that the spread of such homes is a "condition for national progress." But further investigation might show that the essential condition for such homes is the existence of mentally and physically fit parents, and that the fitness of the children flows after all from the parentage and not from the home. Or, if we took the problem of the employment of mothers, we might discover that employed mothers had the healthier children, and on this ground might oppose attempts to restrict the factory work of women during childbearing years. But on further investigation we might find that such mothers were, on the whole, older and with older children, from whom time had weeded the weaklings. Or we might find the death-rate of innkeepers to be much in excess of that of the clergy, and might overlook the fact that the average age at starting the occupation of innkeeper is higher than that of entering the Church, because to keep an inn is the ambition of many men who begin life in other callings. Or we might inquire into the effect of the drinking of the father on the health and ability of the offspring. We might find that the drinking father had better developed children than the non-drinker; but this might be because the drinker was the better workman, and the superiority of the children an inheritance, or that he earned better wages, and thus, in spite of drink, that his children were better fed. In other words, "Which came first, the owl or the egg?"

Miss ELDERTON describes the enormous part played by environment in modifying living forms as being of two kinds: a change in the somatic characters following upon the transfer of the individual to different surroundings, or his treatment under different conditions of nurture; or a change in the germ characters of the race, owing to the environment selecting for survival a certain differential class of individuals, and their somatic characters thus becoming more frequent and possibly dominant in the population owing to the strength of heredity. It is with the former description

[1] Dulau & Co., 37, Soho-square, W. 1909. Pp. 40. Price 1s.

of influence that her inquiry was concerned, and it has been conducted by an endeavour to establish the "coefficient of correlation" between certain characteristics of parents and offspring. It is said to have been ascertained, by "a variety of investigations," that the correlation between physical and mental characters in parent and offspring is about 0·45 to 0·50; and the question appears to be whether this relation is appreciably modified by what may be described as accidental causes, such as are comprised within the general term "nurture." Miss ELDERTON shows that it might be easy to attribute to environment a condition which was really a secondary influence of heredity. A weakling may follow an unhealthy trade because he has not strength for a better one; and his offspring may be physically inferior because he is a weakling, and not because he follows an unhealthy trade. In endeavouring to find her way out of the various difficulties with which the questions before her are beset, Miss ELDERTON has been able to avail herself of a report upon 1400 school children of the city of Edinburgh, a record of measurements of 72,857 children attending the public schools in Glasgow, and an account of the children in the "special" schools in Manchester. In all these reports some information was given about the home circumstances of the children concerned, and, among other points, about the "drinking," the health, and the physique of the parents; but it seems reasonable to suppose that much of this information might be quite as likely to mislead as to instruct, and it is at least certain that the word "drinking" would be employed in different senses by different observers. The inquiry, as a whole, appears to show that the influence of Nurture is small when compared with that of Nature, that the physically and mentally weaker stocks are reproducing themselves at a greater rate than those of sounder physique and intelligence, and that modern attempts to improve the environment of the children of these weaker stocks are not likely to be followed by any material improvement either in such children or in their descendants. So far as can be seen at present, it appears that improvement in social conditions will not compensate for a bad hereditary influence; and that the problem of physical and mental degeneration cannot be solved by preventing mothers from working, by closing public-houses, or by erecting model dwellings. "The only way to keep a nation strong is to see that each new generation is derived chiefly from the fitter members of the generation before."

The general conclusions at which Miss ELDERTON has arrived are very strongly supported, on somewhat different grounds, by Professor KARL PEARSON, in a lecture appearing in the same series, in which he endeavours to trace the falling birth-rate of Great Britain to what may generally be described as "factory legislation," and to the impediments which that legislation has thrown in the way of employing children as wage-earners, contributing in an important degree to the maintenance of the families of which they form part. He says, in effect, that the child, who was once a helper at a comparatively early age, is now nothing but a burden until that age is long past, and that the more prudent of potential parents decline to take him upon their shoulders, leaving the business of continuing the race to the comparatively shiftless and unthrifty. He urges that the only way to check the consequent degeneration is by legislation which shall encourage child-bearing among the classes who now avoid it, and indicates certain methods by which this end might be attained, methods such as relief from taxation as a reward of parentage, educational endowments, a modification in favour of respectable parents of the system of old-age pensions, and various other departures from the methods by which "unthinking philanthropy has crippled our power of modifying race fitness." Taken together, the two lectures form a powerful appeal to the more reasoning portions of the community against the practices of the more impulsive, whether these be actuated by ignorant benevolence or by equally ignorant striving after vote-catching, and they at least serve to show the absolute necessity of knowledge as a prelude to useful activity. The custom of "acting foolishly but meaning well" is of far greater antiquity than the poet who denounced it, and we fear it is likely to continue, notwithstanding the excellent work of the Galton Laboratory, for many generations to come. In the meanwhile that work will, we think, commend itself to the judgment of the medical profession, and might be made more generally known than it is at present by a very moderate degree of exertion on the part of medical practitioners. We cannot but add that any endeavours which might be made in this direction would be greatly aided by the adoption of a more lucid and less technical style on the part of those by whom the researches of the laboratory are set forth. To those who would persuade or convince a mastery of the resources of language is as essential as the mastery of his foil is to a fencer; and as long as the examples of FARADAY, of TYNDALL, of HUXLEY, of DARWIN are remembered there can be no excuse in any literature intended for the public for either clothing the teachings of science in abstruse technicalities or for veiling their essential attractiveness beneath obscurities either of construction or of diction.

Annotations.

"Ne quid nimis."

MEDICAL FEES IN CONNEXION WITH THE CIVIL SERVICE SUPERANNUATION ACT.

GOVERNMENT departments are never liberal in remunerating medical practitioners whose services have been required in some capacity or other, and they have even been known to ignore the question of fees when specifying circumstances under which medical advice must be promptly obtained. The time-honoured maxim that a labourer is worthy of his hire is as true in the present day as in any previous period. Gratuitous advice, however, is constantly being given by practitioners in the cause of charity as well as in attendance on impecunious patients, but this kind of altruism is not free from the risk of encouraging the public to under-estimate the money value of professional service. The question of medical certificates and health reports stands somewhat apart from that of medical attendance. They are frequently in request, they may be troublesome to prepare, they may involve some responsibility, and they may have to be given either gratis or for a very moderate consideration. This is particularly

the case with certain certificates which are to be granted in connexion with the Civil Service Superannuation Act, 1909. Every male civil servant over 55 years of age who desires to be brought under the provisions of the Act must obtain a medical certificate setting forth certain particulars in a prescribed form. It is understood that where civil servants are in receipt of salaries of less than £150 a year and are entitled to free medical attendance, arrangements have been made by the Government for the certificates to be supplied by the official medical officer, but in the case of officers not entitled to free medical attendance the certificates of any fully qualified medical man will be accepted and a sum of 5*s.* towards the expense of procuring it will be allowed from the public funds. The members of the Civil Service who benefit under the Act receive annual amounts calculated on the basis of (1) their annual salaries and other emoluments, and (2) their length of service. In the case of those whose position does not entitle them to free medical attendance the effect of the Act is to provide them with what is virtually a new insurance, varying in value from about £170 to many hundred pounds, and it will at once be seen that a fee of 5*s.* for the requisite medical examination is far below the scale of fees universally paid by the insurance companies. It is, therefore, to be hoped that medical men will not allow themselves to be misled into accepting fees which do not accord with the standard of payment for such valuable insurance work at the present time. Fees ranging from 10*s.* 6*d.* to 21*s.* cannot be considered excessive for making these medical examinations and for granting the certificates.

THE USE OF ELECTROLYTIC FLUID IN SWIMMING BATHS.

AN interesting report has recently been presented to the baths and washhouses committee of the metropolitan borough of Poplar by the medical officer of health, Mr. Frederick W. Alexander, in which the evidence appears to be decidedly in favour of the advantages gained by treating the water in swimming baths with electrolytic fluid. The fluid is obtained by the electrolysis under certain conditions of a solution containing magnesium chloride, the result being a solution of magnesium hypochlorite which serves as an efficient deodorant, oxidiser, and disinfectant. The fluid is made by the council's officers for purposes of general disinfection. The first experiments tried were made with the dirty used water in the baths before it was run off into the sewers. For financial reasons, as we have before pointed out, water in public swimming baths cannot frequently be changed, and after a number of people have bathed in the same water, more especially in baths used by persons who have no washing bath accommodation in their own homes, the water must become contaminated with organic matter and, of course, with bacteria. Further, it must be admitted that swimming-baths may be used by persons who are unconsciously or otherwise suffering from communicable disease. There are, in fact, several obviously easy ways by which bath water can seriously be polluted. Mr. Alexander says that changes are noticeable in the water after it has been 24 hours in the baths; it assumes a darkish colour, and if left in the baths grows still darker. At the bottom of the bath a slime tends to form and the bather experiences a feeling of stickiness about his body. In one of the experiments carried out with the dirty used water an excessive amount of electrolytic fluid was purposely added. The water was previously very dark in colour and the bottom of the bath was obscured. A preliminary test on a small scale showed that one gallon of the electrolytic fluid added to 1000 gallons of the dirty water would just oxidise the organic matter present. Dirty water to which three times this quantity of electrolytic fluid was added showed after two hours that the organic matter had been oxidised, while there was still present an excess of electrolysed fluid. To the bathers, it is stated, there was no evidence that an addition of the fluid had been made so far as feeling was concerned, and the taste of the water was not peculiar. In appearance the water gave distinct signs of having cleared itself, it had lost its dirty, dark-brown colour, and "looked like ordinary sea-water." Chemical examination proved the absence of oxidisable matters, while bacteriological examination showed that after incubation for four days no organisms were found growing in the cultures. The cost of treatment is small, 80,000 gallons of the electrolytic fluid having been produced at the borough electrolytic plant installation during a period of four years, at a cost for electricity and materials of under £160. There can be no doubt that if public swimming-baths can be treated at intervals by this simple, economical, and scientifically cleansing method, and if public experience is able to show that the water so treated is without injurious action on the body of the bather, a very valuable advance has been made in an important branch of public health administration, especially in poor crowded localities.

THE BRAIN OF THE LATE PROFESSOR MENDELÉEFF.[1]

Professor W. von Bechterew and Professor R. Weinberg have made a very complete study of the brain of Professor Mendeléeff, so widely celebrated as a chemist, and issued their account, with excellent illustrations, as the first of a series of anatomical monographs which are to appear under the editorship of Professor W. Roux of Halle. Professor Mendeléeff, or Mendelejew, as his name appears in the German monograph, was a heavy, corpulent man, with long fair hair, blue eyes, ruddy skin, and a short, broad head, the width being 87 per cent. of the length. The outstanding feature of his mental life was his powers of visualisation; his concepts became vividly alive, mobile, and plastic; his vocabulary, although not overflowing, was ample and very apt. His brain was rather above the average in weight (1571 grammes) and the convolutions were comparatively simple in their arrangement. So little do we know of any correlationship between special mental gifts and the surface form of the brain that not even those who have made a special study of the brains of celebrities could have guessed that this particular brain belonged to one of the foremost investigators of his time. Professor Mendeléeff's brain shows three interesting features: (1) the left parietal region is extensive and highly convoluted; (2) the posterior parts of the frontal lobes in the neighbourhood of the second frontal convolution are more massive than usual; and (3) the temporal lobes are small and simple. The two features first named are *probably* correlated with Professor Mendeléeff's special gifts of visualisation and creative imagination; the third may be associated with his lack of musical appreciation. The authors do well to remind their readers that our knowledge of the genius-brain is still in its "baby shoes" (*kindersohuhen*). They do not share the despondent view of Professor Stieda, who is convinced that there is absolutely no correlationship between the surface form of the brain and the mental life of the individual, and that all attempts to solve the functions of the brain in this direction are futile. Progress of knowledge has always justified those

[1] Das Gehirn des Chemikers D. J. Mendelejew. Von Professor W. von Bechterew und Professor R. Weinberg. Anatomische und Entwicklungsgeschichtliche Monographien herausgegeben von Professor W. Roux. Heft 1, pp. 22, eight plates and a portrait. Leipzig: Englemann. 1909. Price 7 marks.

who sought an explanation of form in function, and those who watch most closely the growth of our knowledge of the brain are most sanguine that the explanation of its form will be first found by the physiologist. Whatever the ultimate interpretation of the facts may be there can be no doubt that Professor Bechterew and Professor Weinberg have done a real service in placing on record an account of the brain of the greatest of Russian chemists.

THE INVESTIGATION OF BERI-BERI IN THE FEDERATED MALAY STATES.

MANY investigations into the causation of beri-beri have been undertaken in recent years, but none of them in our opinion have appeared to offer such promising results as that which has been carried out under the direction of Dr. H. Fraser at the Medical Research Institute of the Federated Malay States. This inquiry was begun in 1907, and we published in THE LANCET of Feb. 13th of this year a preliminary report by Dr. Fraser and his colleague Dr. A. T. Stanton. The full report on the clinical portion of the inquiry was issued not long ago as No. 10 of the "Studies" from the Institute, and in it we were promised further details as soon as certain laboratory investigations were completed. This "clinical" report seemed to demonstrate clearly that beri-beri as met with in the Malay Peninsula is caused by the use of white, or uncured, rice as a staple article of diet. Some further interesting details have been recently published concerning the histological portion of the inquiry in the lately issued annual report of the Medical Research Institute for 1908. The chemical and pharmacological parts are, however, still proceeding, and for this reason, as also in view of the fact that it was thought advisable to repeat and confirm certain interesting observations already made, publication of the rest of the beri-beri report has been postponed for the present. Some particulars, however, are given as regards the histological examination of rice. By a particular process, the details of which are given by Dr. Fraser in the annual report, sections of the rice grains were made so as to secure comparison microscopically between white, parboiled, and other rice grains. In the first instance these sections were carefully examined to ascertain the presence or absence of moulds, with the result that in none of the sections prepared for examination could a trace of any mould be discovered. The sections showed distinctly the difference between white and parboiled rice. The latter in addition to the removal of the paleæ had most of the pericarp removed, while the white rice had the pericarp entirely, and the subjacent layers to a considerable extent, removed by the process of milling and polishing. As the aleurone layer in rice grains exists subjacent to the pericarp, it would appear on histological grounds, as had already been suspected, that the white rice is of lower nutritive value than parboiled rice. The chemical examination of the rice had shown that parboiled rice contained three times as much oil as the white rice. Sections of white rice, parboiled rice, and padi were therefore prepared by cutting the softened grains on the freezing microtome. These sections were treated with the various stains employed in the recognition of fats, and it was seen that oil was mainly confined to the layers immediately subjacent to the pericarp. As these layers are practically intact in the parboiled rice grain, and for the most part removed in the white rice, the reason for the difference of the two kinds of grains as regards oil is apparent. Since it might be contended that the treatment previous to milling might have rendered the proteid in parboiled rice more readily available than in the white rice, experiments were undertaken to elucidate this point, but they showed that no difference existed in the availability of the proteid in the two kinds of rice grains. Thus it was demonstrated that nutritive differences, as regards oil at least, exist between the two sorts of rice; and with a view to examine the problem further from the dietetic point of view it was decided to extend the analyses so as to embrace all the articles of food habitually consumed by the Oriental races in the Malay peninsula. There the investigation now rests pending the publication of the chemical portion of the inquiry. That beri-beri should be caused by a deficiency in the amount of fat in the diet is no new idea. A French writer, quoted by Manson, propounded some time ago the theory that beri-beri was caused by a deficiency of fatty food—that it was, in fact, a "fat starvation." The disappearance of the disease from the Japanese navy after the substitution of a ration of fat pork for some of the rice dietary seems to give some support to this view. If the further investigations now being carried out in the Medical Research Institute of the Federated Malay States should prove this theory to be correct, the prevention of the disease in future, both on land and sea, would thus seem to be a comparatively easy task. The heavy financial losses which fall on employers of labour in the Far East and elsewhere from beri-beri sickness would as a result be greatly reduced, and much prolonged suffering as well as mortality would be prevented.

MEDICINE AND THE DAILY PRESS.

THE time has gone by when the discussion of any medical or sanitary matter outside the columns of a scientific journal should be regarded as an impropriety. On the contrary, with all sanitarians, we welcome the assistance of the greatest instrument for the formation of public opinion which the world has ever known, when that instrument is set in motion in a dignified and careful manner for the dissemination of useful knowledge. The good which the daily and weekly newspapers can do by bringing home to their millions of readers the well-ascertained lessons of hygiene and methods of preventing disease is enormous, and we have often admired the excellent reports of the proceedings of sanitary congresses and other gatherings of experts interested in public medicine which have appeared in non-technical papers. But there is an enormous difference between the temperate presentation to the general public of well-crystallised facts of scientific experience and the serving up of sensational tales of medical "progress" and discoveries that have leaked by devious paths from the laboratory or the lecture-room, and have not only gathered a thick coating of fiction but have lost their original nucleus of truth during their unfortunate passage to publicity. Worst amongst them, because most cruel, are the tales of cancer and consumption cures which are so frequently given editorial sanction, though no attempt has been made to submit them to scientific criticism. Others less mischievous, but still unwarrantable, are the mutilated though highly decorated accounts of some lately devised system of treatment which before its proper application has been fully ascertained is recommended by its enthusiastic reporters as well-nigh a panacea. We need only mention the present fashionable "boom" in sour milk which has resulted from the publication of Professor Metchnikoff's views upon the attainment of old age by the device of policing the intestine with the lactic acid bacillus. When another useful and more recent method of treatment has filtered through similar channels to the public knowledge, horse serum and soda may become a fashionable pick-me-up before breakfast. Radium, of course, is well in the general eye and many regard it as an elixir of life. The medical man watching the rising and waning of such

foibles of self-treatment may, indeed, feel with Puck, as to the inherent foolishness of mere mortals; but he can hardly acquit the newspaper press of being something more than accessory before the fact to their folly. Certain lay journals have recently devoted attention to the plenary sitting of the International Congress of Medicine for the discussion of appendicitis. Their readers have learned that the general feeling of that debate was against the operative treatment of appendicitis and that a reaction of medical men in favour of medical treatment is imminent. The impression thus given of what happened is quite wrong. What really did concern the Congress was not whether operations should be performed, but whether in certain cases they should be done in the "hot" or "cold" stage, which is, of course, still a matter of opinion. A general newspaper editor could not be expected to have such knowledge of medicine as would make him even acquainted with so technical a matter, in which case he would surely be well advised not to print any article dealing in popular language with the pathology and treatment of a serious and common malady without first passing it under expert and impartial scrutiny.

BRONCHO-BILIARY FISTULA DUE TO SCLERO-GUMMATOUS SYPHILIS OF THE LIVER AND LUNG.

AT a meeting of the Société Médicale des Hôpitaux of Paris on July 23rd M. J. Bruhl and M. Lyon-Caen reported a case in which a rare complication of syphilis occurred—broncho-biliary fistula due to gummatous disease of the liver and lung. The patient was a woman, aged 32 years, who was admitted into hospital on Nov. 20th, 1908, for enlargement of the abdomen and increasing expectoration of sputum of a greenish-yellow colour and bitter taste. At the age of 19 years she had been treated for syphilis at another hospital. Eight years before admission she had an attack of jaundice, and in April, 1907, she suffered from a painful crisis, simulating hepatic colic, with slight jaundice, but stools containing bile. From that time the patient knew that the liver was enlarged. At the same time as the hepatic symptoms pulmonary ones occurred. The patient had suffered from cough for five years and from hæmoptysis for two years. She wasted considerably, so that the symptoms suggested tuberculosis. In October, 1908, she expectorated a large quantity of a viscid greenish liquid with a bitter taste. On admission she was pale and wasted, but there was neither fever nor anorexia. The expectoration was nummular and muco-purulent and of a greenish tint. Under the microscope it showed neither elastic fibres nor tubercle bacilli. On staining with eosin a large number of polynuclear cells and greenish-blue crystals were seen. On macerating the sputum in a normal solution of soda clear greenish liquid was obtained which gave the reaction of biliverdin. Examination of the chest showed on the right side in front a zone of dulness continuous with the hepatic dulness, and behind an area of dulness at the apex, a resonant area in the middle, and an area of dulness in the lower half. On auscultation dry and moist râles of various sizes were heard. The abdomen showed above the umbilicus a very developed venous circulation. There was ascites and the liver was much enlarged, its lower border being hard and irregular and descending five or six fingers' breadth below the ribs. In the left lobe could be defined a hard non-fluctuating painful tumour of the size of an orange. There was no jaundice. The spleen was enlarged and palpable. The stools were normal. The urine was of a mahogany colour and contained much urobilin. Though the blood did not show eosinophilia hydatid cyst was suspected, but the reaction of complement fixation for the echinococcus proved negative. Radioscopy showed a half obscure area at the apex of the right lung and two opaque areas—one near the spine and the other apparently in front of the stomach. The hypothesis of hydatid cysts therefore appeared to be confirmed. On Dec. 24th and the following days hæmoptysis occurred. On Jan. 8th the expectoration was of the colour of yelk of egg and contained much bile, and the dulness at the lower part of the right chest had disappeared. As there was evidently a communication between the biliary passages and the bronchi laparotomy was performed on Jan. 30th, 1909. Only an enormous lobe of Spigelius was found; the gall-bladder and bile ducts were normal. Death occurred eight days later. At the necropsy the liver was found very large and irregular and resembled a nutmeg-liver, but in three places hard whitish masses were seen which projected from the surface. The largest was of the size of a fist and adherent to the diaphragm and right lung. It was hard and fibrous and contained a large cavity which communicated with a biliary canal and also with the lung. The right lung was sclerosed and very little pulmonary tissue remained. Evidently the attack of jaundice eight years before was due to a growing gumma which compressed a large biliary canal, and the cough and first attack of hæmoptysis were due to invasion of the lung by the gumma. M. Bruhl and M. Lyon-Caen could find on record only three other cases in which a gumma of the liver opened into the bronchi, though the co-existence of pulmonary and hepatic syphilis is well recognised. Mauriac and Fournier have described a thoraco-abdominal form of visceral tertiary syphilis.

THE CHILDREN'S INFIRMARY AT CARSHALTON.

IT may be remembered that the Metropolitan Asylums Board constructed in 1902 a Southern Hospital to which convalescent cases could be drafted from its fever hospitals, just as other patients are now transported to the Northern Convalescent Hospital at Winchmore Hill. But circumstances change, and the hospital at Carshalton, which had already cost about £230,000, was never used, being left for six years in charge of a few workmen. Last year the Board determined to open the hospital in good earnest, not for fever patients, who are now well accommodated at Gore Farm, Dartford, but for sick and convalescent children under the age of 16 years. Many were the difficulties in making roads, in converting 100 acres of jungle land into green-sward and vegetable gardens, and in turning the buildings to a use for which they were not originally intended; but a willing committee, under the energetic and public-spirited chairmanship of Mr. E. S. Browne, gradually overcame them, and the new infirmary received the first batch of patients last January, though it was not formally opened by the President of the Local Government Board until June. Even now it has hardly reached its full strength of staff and inmates, but at a recent visit we saw some 735 children, at least half of whom were under the age of three years, collected from the infirmaries, workhouses, and schools of every board of guardians in London, except the City, which enjoys the rare privilege of harbouring but few sick children. It may be that the wide views of the neighbouring country are more appreciated by the staff than by the patients, but even little children are none the worse for being placed in a beautiful scene, while the high ground on which the buildings stand is exposed to sun and wind, which successfully bronze the children and give them voracious appetites. The Board has already provided four medical officers, 100 nurses (including 30 probationers), 19 laundresses aided by two men, and six sewing women. The institution is fitted with electric light, heating apparatus, sewerage, a telephone system, 150

clocks synchronised by electricity, and two electric motor-cars for conveying food in hot-water tins from the central kitchen to the 24 bungalow blocks. Children requiring surgical treatment are housed in a two-storeyed block which contains a well-fitted operating theatre, and, so far as is possible, patients suffering from various diseases are collected together in groups. Those children who are tuberculous, or suspected of becoming so, spend their days and nights in the open air under lean-to roofs. Boys who have reached the age of ten years are allowed the privilege of becoming scouts and of wearing shoulder knots; we saw some 30 of these scouts under the command of five patrol leaders, two of whom had lost a leg! They are allowed to drill, to build huts, and to make themselves useful in a variety of ways, while a body of girl "scouts" is engaged in sewing and other domestic work. Partly as a result of healthy occupation, the discipline and manners of the children seemed to be excellent, and no punishment more severe than being ordered to bed for a day or two has yet been found necessary. Most of the children looked very healthy, wore a happy expression, and seemed to be on the most friendly terms with the medical officers and nurses.

COSMIC INFLUENCES AND HEALTH.

WHEN regard is had to the number and intensity of great cosmic influences which are at work some wonder may well be expressed that the physical conditions of the world are as steady as they appear to be. It is only recently that the existence of fresh manifestations of forces affecting the earth has been realised, and it would be rash to say that of these manifestations there is no end. A fortnight ago we were told by our telegraph authorities that the whole earth was visited by a great magnetic storm. There were sudden rapid oscillatory movements of the magnetic needle, so erratic in character that the tracing could no longer be registered on the recording sheet, and in many instances the telegraph service failed. The duration of the storm was comparatively short, but whilst it lasted it exhibited an energy which has very seldom been rivalled. The year 1909 has so far been characterised in many parts of the world, including this country, by a very disturbed state of weather which has been uncongenial to everyone's health and comfort, and there are well-recognised authorities who trace this unpleasant fact to sun spots, the most recent of which has been calculated to be hundreds of thousands of miles in area. Magnetic storms have been ascribed to the same solar phenomenon, to a savage outburst of incandescent gases, and the world has been treated to a deluge of electrons, each carrying its electric charge to effect disturbances in the media they travel through, bringing about amongst other things the beautiful phenomena of the aurora and the magnetic storm. All this is interesting, and the interest intensifies when we consider that it is possible that these cosmic forces may have a profound influence on the health. No one can deny the peculiarly distressing effects which an impending thunderstorm has on some people and the relief they experience when the storm has spent itself. Many people assert that they experience a thunderstorm headache and can predict with confidence when the atmospheric stress is about to be relieved. It is also a fact, and not a rustic piece of credulity, that beer or milk "turns" under these conditions, but no satisfactory explanation appears to be forthcoming of these events. They are, however, not more obscure than the colic, sickness, and diarrhœa which sometimes accompany electrical states. When we follow this vein of thought we become reluctant to deny the accuracy of many so-called superstitions. Is it quite incredible, for example, that some persons cannot sleep unless their body lies in the direction of the magnetic meridian or across it, as the case may be? The conviction of this idiosyncrasy here and there has been so strong that revolving beds have been made which could be turned to the position conducing best to sleep. No one doubts that by some subtle power the moon influences the tides, and there is the probability of the existence of other cosmic influences of which so far we know little, yet which may interfere with our well-being. Certainly our well-being is disturbed by weather, and in that way, at any rate, we may trace certain disturbances of health to sun spots, since there seems to be little doubt that the meteorology of the earth is affected by them.

WILLIAM HARVEY'S ASSOCIATIONS WITH BIRMINGHAM AND EDINBURGH.

IN another portion of our present issue Dr. D. Fraser Harris, writing from Birmingham, sets forth at some length reasons for believing that in the year 1642 William Harvey spent a day or two at Aston Hall, near that city, in attendance on King Charles I. Dr. Harris has collected much information on other points in Harvey's personal history, and embodied some of it in a presidential address which he delivered last year at a meeting of the Scottish Microscopical Society. On that occasion he said that Harvey accompanied the King to Scotland in the summer of 1633, and that before leaving London it was necessary for him to apply for leave of absence from St. Bartholomew's Hospital and to have a deputy appointed. The King made this journey for the purpose of being crowned in Edinburgh. He entered the city in state by the "West Port," or "Gate," at the western end of the Grassmarket; the procession is known to have thence passed up the West Bow to the head of the Lawnmarket, and then down the High-street and Canongate to Holyrood Palace. Harvey must have traversed this route along with the King, and as the latter remained in Scotland until July 18th it is almost certain that Harvey spent about two months north of the Tweed. Of this there is indirect evidence, for Harvey has left on record the appearance of the Bass Rock "during the months of May and June" in a description he wrote of that island, which he visited for the purpose of studying the development of the embryo in the eggs of the solan-goose. It is not surprising that Harvey makes no allusion in his writings to the religious controversies which at this time were agitating Scotland, for his interests were so entirely professional that he even read Fabricius on generation during the battle of Edgehill.

CHRONIC CHOREA.

AT the Nineteenth Annual Congress of the Alienists and Neurologists of France and the French-speaking countries, held at Nantes in August (a note on which from our Paris correspondent will be found in THE LANCET of Sept. 4th), the subject of discussion in the neurological section was the chronic choreas. Dr. Paul Sainton of Paris accepted Brissaud's definition of chorea as consisting in "purposeless and seemingly causeless involuntary movements, occurring during both activity and rest, and consequently illogical and maladroit." This definition serves to render easy the differentiation of chorea from tic, myoclonus, athetosis, tremor, and rhythmical movements of hysterical origin. The clinical varieties of chronic chorea are Huntington's hereditary adult chorea, chronic chorea without the hereditary element, chronic Sydenham's chorea, and Brissaud's variable chorea. The pathological anatomy of chronic progressive chorea consists in inflammation of the meninges and convolutional atrophy, with occasional hæmorrhagic foci and areas of softening in the

subcortical white matter and basal ganglia; microscopically, degeneration of the cells of the cortex, with interstitial inflammation and vascular sclerosis, is found. In the interpretation of these lesions there is much difference of opinion. Some consider the disease a circumscribed encephalitis, others a chronic diffuse interstitial encephalitis, others a neuroglial, and others still a vascular sclerosis: with one and all the clinical picture is identical. The pathogeny of chronic chorea is still vexed, and Dr. Sainton contented himself with the statement that the lesion of the nervous centres is one which is capable of emancipating the automatic motor centres. As for the familial element in the disease, it would appear to consist in a premature senescence of the cortical cell; perhaps this constitutes a *locus minoris resistentiae* for an inflammatory or degenerative process. Chronic chorea must take its place in the category of diseases characterised by the combination of mental and motor symptoms, a combination which implies a physiologico-pathological modification of the cerebral cortex. Thus it comes in line with the tics, with epilepsy and athetosis.

THE WEST AFRICAN MEDICAL STAFF.

IN accordance with proposals made by the Departmental Committee on the West African Medical Staff, changes in the organisation of the staff are in contemplation which will have the effect of increasing the remuneration of medical officers and their prospects of promotion. In particular, it has been decided that medical officers who have served for five years and are recommended for a higher rate of salary shall, after passing satisfactorily through a special course of study, be placed on the scale of salary rising by annual increments of £25 to £600. Certain sanitary appointments will also be created, with salaries of £600 rising to £700, or more. Full information as to these proposals may be obtained from the report of the committee, and the despatch from the Secretary of State in which the report was forwarded to the West African Governments. The report and despatch have been published as a Parliamentary paper.[1] Pending the receipt of replies from the West African Governments to the despatch forwarding the report, it has not been possible to revise this paper so as to include the new arrangements.

TEETH AT THE PENZANCE WORKHOUSE.

IN THE LANCET of Sept. 25th (p. 973) we commented upon the permission given by the guardians of Chichester Union to a tramp who desired to retain his tooth-brush and tooth-powder. We are inclined to wonder what would be the action of the guardians at Penzance in a similar case, for we read in the *Daily Telegraph* of Sept. 30th that "at a meeting of the board of guardians (at Penzance) a doctor recommended that tooth-brushes should be provided for workhouse children, but by a majority of five the board decided not to accede to the request." These enlightened gentlemen did not, perhaps, pause to consider that the physical health of the children placed by the law under their care is to be promoted and maintained by helping them to keep their teeth clean and sound, no less than by enabling them to wash their faces and hands. We pay the Penzance guardians the compliment of believing that they not only allow but compel pauper children to wash not merely their faces and hands but their bodies, and that they believe such ablutions to be useful in maintaining health and in preventing future expenditure by guardians upon the care of the sick. The evil effects arising from neglected teeth are, we should have thought, even more obvious than the results of constantly neglected baths. However, the tramp entertained at Chicester will, if he is well advised, avoid Penzance, and the guardians of that town may be recommended to study the Report of the Poor-law Commission.

[1] Cd. 4720, price 2½d., through any bookseller.

THE LONDON MEDICAL EXHIBITION.

THE lines on which the London Medical Exhibition, now annually held in the Royal Horticultural Hall in Vincent-square, Westminster, is organised are evidently appreciated by the medical profession, for each year there is an increasing attendance of our colleagues, not only from the metropolis but from the country also. The exhibitor, of course, regards the occasion chiefly from a business point of view, but if he does not succeed in gaining a result of practical benefit to himself he is, at all events, instrumental in bringing fresh advances in pharmacology, surgical and hygienic appliances, special foods and beverages to the notice of the visitor. One of the principal endeavours of the promoters of the scheme (that is, to make the exhibition of a purely professional character) has, it is stated, met with the most encouraging results. As far as possible the layman is excluded, and so no appeal is made to him in the shape of side attractions. In short, the exhibition is intended exclusively for the medical profession and this intention has been very generally appreciated. The proceedings this year have been marked by a standard still higher than previous years in regard to the character of the exhibits in general. Amongst the exhibitors were firms enjoying a leading reputation for the success with which they represent the great advances made in the preparation of fine pharmacological products, in the design of surgical and hygienic appliances, and in the manufacture of special foods and beverages. At times the place was animated by the various discussions going on between the medical practitioner and the man ready to supply him with the latest development. Last year the exhibition was attended by over 3000 London practitioners, besides a good number from the provinces, and the attendance this week promises to exceed that record. There seems, therefore, to be little doubt that medical men are glad of this opportunity to make themselves acquainted with the actual shape which the latest suggestions take, and which are likely to be useful to them in practice. The exhibition opened on Monday last and closed to-day (Friday).

THE LUNATIC ASYLUMS OF THE BOMBAY PRESIDENCY.

THE official reports of the public medical services in various parts of the British dominions are not all possessed of equal merit as contributions to medical knowledge. Sometimes they evoke hostile criticism in the local press, and a recent example of this kind is the triennial report on the lunatic asylums of the Bombay presidency. We have not seen the report in question, but it appears that a writer in the mail edition of the *Times of India* of August 14th complains that its pages are unduly filled with "almost endless tables of attenuated statistics and a considerable amount of other matter dealing with routine details," together with a corresponding deficiency of such descriptive comment on the details of the subject as might supply a kind of drapery or covering for the statistical skeleton. For instance, the report states that the total population of the asylums in 1908 was 1326 for the entire presidency. This strikes the critic as a very small number proportionally, and he complains that there is nothing in the report to show whether this figure represents anything like the whole of the existing insanity in Bombay. In his opinion a good deal more of the disease prevails, but the relatives of the sufferers keep them at home. Since the preceding triennial report was published the lunatic

population has increased from 1188 to 1326, 98 of the newcomers being males and 40 females. Out of the entire number under supervision 200 are classed as criminal lunatics. The information furnished regarding the causes determining the incidence of the lunacy is said to be very scanty. In conclusion, the critic draws attention to the difficulty which the asylum superintendents find in obtaining a satisfactory class of men for employment as attendants. This difficulty, however, does not exist merely in the Bombay Presidency, but is universal throughout India.

THE MUSEUM OF THE ROYAL COLLEGE OF SURGEONS OF ENGLAND.

THE Council of the Royal College of Surgeons of England has appointed Professor A. Keith and Professor S. G. Shattock to continue the series of demonstrations given in connexion with the museum. The museum demonstrations, which were inaugurated by the Council last year, were largely attended by medical practitioners and senior students, and were the means not only of making the contents of the museum better known, but also indirectly of adding valuable specimens to the collection. The present course begins on Friday, Oct. 15th, at 5 P.M., and is open to all medical students and practitioners on presentation of their cards. The Council of the College has made arrangements for the preparation of a new edition of the Catalogue of the Pathologcal Section of the Museum. The one at present in use was prepared 25 years ago by Sir James Paget, with the assistance of Dr. J. F. Goodhart, Mr. Alban Doran, and Mr. Frederick S. Eve. The new catalogue is to be written by Professor Shattock, with the assistance of Mr. Alban Doran in the Gynæcological series. A new edition of the catalogue of the entozoa is being prepared by Dr. R. T. Leiper; the last edition was the work of the well-known helminthologist Dr. Cobbold. Dr. Leiper has also rearranged and made many additions to the collection of entozoa in the College collection. The acceptance by the Council of the College of the large collection of specimens belonging to the Odontological Section of the Royal Society of Medicine has entailed a considerable structural alteration and extension of the museum. The odontological collection, which has been accepted by the College as a trust, comprises nearly 5000 specimens and requires a special room for its display. It is proposed to add the odontological specimens already in the College museum, many of them being preparations made by Hunter to illustrate his classical researches on the teeth, to the collection now accepted on trust. The combined collections will make the most extensive and most valuable odontological museum in the world and will prove a boon to all English odontologists engaged in study and research. It is hoped that this new section of the museum may be arranged, labelled, and completely catalogued during the present winter.

THE MANCHESTER AND SALFORD SANITARY ASSOCIATION.

THE report of the Manchester and Salford Sanitary Association for 1908, which has been recently issued, shows that the work of the association is making good progress. Various matters affecting health came under review during the year, two of them being Nature Teaching in Schools and the Town Planning Movement. It was in Manchester that the town planning movement was started, and it still receives the attention of the committee, although the Bill introduced by Mr. John Burns, President of the Local Government Board, to give town councils special powers with a view to preventing the creation of slums, has been to a great extent modified. The supply of cottage baths and washhouses has not been advanced beyond the two that were established many years ago, notwithstanding their great and continued success. It is consoling, however, to learn that a deputation to the Baths Committee was told that a good deal of work in the adoption of sites had been done, and that an early extension of the scheme may be looked for. In the meantime money has been lavishly spent in the erection of swimming baths with luxurious accommodation and decorative exteriors, but it is a question whether these magnificent structures add as much to the comfort and health of poor families as the unobtrusive baths and washhouses hidden away in unimportant streets. Simultaneously the increase of the rates seems to be forgotten, as well as the invariable sequence that slums increase as the rates go up. Mr. William Thomson, F.C.S., is engaged very usefully for the association in an examination of the quality of the gas supplied from the gasworks. There has been great deterioration of it since the introduction on a considerable scale of water-gas without any corresponding reduction in the price and with increased risk of gas poisoning. The committee recently passed the following resolution, viz.:—

> That having regard to the acknowledged deterioration of the physique of a large proportion of our people this association urges upon the authorities that the time has come when the youth of the country should be required to submit to systematic physical training up to the age of 22.

The association recommends service in the Territorial Army as one means of effecting the desired improvement of our national physique, and there appears to be no doubt that military training and drill are more successful in improving the physical condition of a young man than the mere playing of games. It does not speak well for the general interest in the association that the list of subscribers is so small. This is to be regretted, for if a considerable proportion of the people could be persuaded that the sanitary condition of the city is a matter of public concern sufficient numbers of small subscriptions would come in to put the association into a satisfactory financial position. "Health Lectures for the People" are still given and published at a very cheap rate, and at the conclusion of the annual meeting Mr. H. W. Norman, L.D.S., delivered an admirable address on "The Condition and Treatment of the Teeth of our Public Elementary School Children."

A RETURN prepared by the Inland Revenue authorities shows that the numbers of licences at 5*s*. each issued to makers or vendors of patent medicines in Great Britain (the duty not extending to Ireland) were in 1898–99, 33,992; in 1899–1900, 34,554; in 1900–01, 34,698; in 1901–02, 35,364; in 1902–03, 36,366; in 1903–04, 38,462; in 1904–05, 40,129; in 1905–06, 40,734; in 1906–07, 41,353; in 1907–08, 42,272; and in 1908–09, 42,563.

AT a meeting of the Medical Society of London to be held on Monday, Oct. 25th, Dr. F. W. Hewitt will read a paper on the Need for Legislation in Regard to Anæsthesia and the lines upon which such legislation should take place. As the whole question is one of great importance to the medical profession and one on which opinion is sharply divided an interesting debate should follow.

THE Governor of Mauritius in a telegram to the Secretary of State for the Colonies has reported 26 cases of plague with 14 deaths during the week ending with September.

THE death has occurred of Dr. William Rivers Pollock, obstetric physician to Westminster Hospital, who was 50 years of age.

WE regret to record also the recent death of Dr. Edward Clapton, formerly physician to St. Thomas's Hospital, who died at Lee in his eightieth year.

THE POOR-LAW MEDICAL SERVICE: COMING LEGISLATION.

BY WILLIAM HOLDER, M.R.C.S. ENG., J.P.,

MEDICAL OFFICER AND PUBLIC VACCINATOR FOR THE SUTTON DISTRICT OF THE SCULCOATES UNION; LATE SURGEON TO THE HULL AND SCULCOATES DISPENSARY.

THE speeches in the House of Lords on the recent Reports of the Poor-law Commission mark "footprints on the sands of time." The head of the State Church, the Archbishop of Canterbury, was roused to press that the conclusions of the Commissioners should not be disregarded or delayed; and the leader of the Government in that House, Lord Crewe, said significantly: "The system [Poor-law Act Regulations] of 1834 had reached its limits, and if there was to be any real improvement we must look to something else," and followed his words by the declaration that "this was a vast subject, but not too vast to be dealt with within the immediate future." This is all the evidence we need that vast changes affecting the medical profession are imminent. It therefore behoves the profession, as a trusted body of the State, to interest itself in the matter, to study the subject, to determine its policy, and to advise the State on matters in which nearly 4000 medical men are personally concerned, and about which they have the most intimate knowledge. The members of the medical profession as a general body may then be asked to act as faithful allies to their colleagues of the Poor-law Medical Service and to give active support to any well-considered scheme that may be forthcoming to put the Poor-law Medical Service in a more efficient position.

The two reports of the Poor-law Commissioners are very searching. Some member or members of that Commission must have had practical knowledge of the difficulties and deficiencies under which Poor-law medical officers conduct their efforts and must have effectively impressed the signatories of both the Majority and Minority Reports with the gravity of the position and the needs for recognition and help of the medical part of Poor-law management. Whoever took this line, let us not forget to be grateful.

On all hands the importance of these two reports is granted, and this by no class more freely than by the many boards of guardians who have, on the whole, humanely—so far as their knowledge went—carried out the system of the 1834 Act. These boards have, at any rate in some of our larger cities, endeavoured to meet, by extended help to the poor, the developments which increased wealth and wider intelligence have given to the country. In the treatment of the sick, unfortunately, many boards have made no movement, but since these reports have been published numerous guardians have read them and having enlightened themselves are showing a willingness to profit by the lessons. Certain boards of guardians have submitted questions to their medical officers asking for information and for suggestions as to the management of medical matters and the regulations of areas—a thing never done before. As all amendments of a law must be founded on experience of defects in its working, it may not be unhelpful to lay before the profession a series of queries put by one board of guardians to the district medical officer, and the replies of that officer who has had charge for over a quarter of a century of one of the largest districts in one of our great cities.

Letter from the District Medical Officer of Medical Relief District No. —— of the —— Union to the Clerk of the —— Board of Guardians.

MEDICAL RELIEF DISTRICT NO. ——.

[The letter commences by the medical officer explaining that it has been his duty as a member of the Council of the Poor-law Medical Officers' Association, not only to read the Reports of the Royal Commission, but to attend a National Conference of the Poor-law Medical Officers' Association at which Commissioners who signed both Reports read papers expounding the medical aspect of their respective views, and also to read the memorandum of the chief medical district inspector of the Local Government Board. He has thus learnt something of the tendency of the legislation which is coming. But if the Commissioners, after five years of industrious endeavour, admit their conclusions are incomplete, it cannot, he submits, be expected that within the limits allowed he can cover the complex medical problems which are involved in the questions. He continues:—]

The most prominent trend of change in the District Medical Service is to bring the district medical officer's work into relationship with that of the sanitary medical system of the locality in which he acts. The management of poverty and its disease causes is so blended that the separation of the district medical officers from the control of the guardians is unlikely; but a practical defect is felt—viz., that district medical officers see insanitary causes, such as filthy homes, defective privies, blocked and broken sinks, verminous dirty persons, slovenly dirty mothers, in untended houses in which are children with suppurating eyes, and even contaminating diseases, such as chicken-pox and other important causes, inviting, originating, and continuing disease; and yet though seen and deplored by district medical officers as a cause of poverty, they (the district medical officers) are out of the machinery which removes them. They have no duty to report them to the sanitary authority.

This evidences want of some official link between two departments doing related yet now separated work. There should be some connexion between these two offices in the interest of the ratepayers as well as the poor themselves.

I answer the detailed questions:—

QUERY 1.—So far as your district is concerned, do you think that the present boundaries and arrangements are conducive to a satisfactory administration of relief to the sick poor?

ANSWER 1.—The arrangements are not conducive to a satisfactory administration of relief to the sick poor.

(*a*) The sanitary services are too related in work to be separated in action.

(*b*) When a severe epidemic arises some automatic method of supernumerary temporary assistance should be provided; and as the district medical officer is the first in the field to note an epidemic originating and advancing, and the best qualified judge of its causes and its virulence, he should be officially authorised to send his valuable information to the sanitary authority, otherwise the sanitary authority can only generally be informed of a coming epidemic by an advancing death-rate or defective school attendance.

(*c*) The closing entirely of the relief office for so long a period as from Saturday noon to Monday morning is a defect to be remedied. I am making no reflection on relieving officers. They are kindness and consideration itself to the poor, and in this Saturday to Monday interregnum, when they are found, they readily sacrifice their leisure to meeting all necessities; but many cases occur when poor persons do not know where to get orders for medical attendance. The district medical officers, if they hear of the case, attend without an order, but the poor have some difficulty in understanding this.

(*d*) "Not on the book" orders should be recognised and paid for as extra medical work. There is no doubt much suffering caused to honest poor persons, temporarily down on their luck, unable to pay reasonable charges for efficient medical attendance, who are not entitled to be in receipt of parish relief, and who are unable to obtain infirmary or dispensary orders. These people might fairly have medical aid much extended to them, not at the cost of the medical attendant, but at the expense of the rates or the State.

(*e*) A very desirable new "arrangement" would be that a supply of binders, pins, and a few napkins should be kept and by certificate given out by the relieving officers to those needing them, as accouchement necessities. It is not unusual for a district medical officer to have to attend midwifery cases in houses where not even a clean rag is to be found.

(*f*) During the absence of the district medical officer on his yearly holiday no substitute is provided.

In answer to that part of the question relating to "present boundaries" I would say that:—

(i) My present boundary is workable, but some automatic supernumerary help ought to be provided to the district medical officer when the outer fringe of his district, if bordering on open lands, has its population greatly increased.

(ii) In fixing the remuneration for each boundary the poverty of a district should bear reasonable relationship to the number of its likely sick poor.

QUERY 2.—Is the present arrangement for the supply of medicines, dressings, &c., satisfactory in the interests of the patients and suitable to their necessities? Would you advocate the establishment of district dispensaries, to be maintained by the guardians, where sick paupers could be supplied with medicines, &c., on the written recommendation of the district medical officers?

ANSWER 2.—The present arrangement for the supply of medicines, dressings, &c., is not satisfactory in the interests of the patients or suitable for their necessities or cure. The modern aseptic dressings, antiseptics, gauzes, &c.; the modern medicines; the serums, liquid animal extracts, new chemical synthetical compounds, and other modern expensive helps, which shorten many illnesses, are a serious cost, one prohibitive to the district medical officer. This unreasonable charge on the doctor invites neglect or dulls his perception of the extensive and proper use of new remedies. It is but natural, he feels, that the guardians should pay him at least the average of what the average patient costs in medicines and appliances in the house if they wish him to treat his cases according to modern methods. I have tried to keep my conscience clear and to forget my pecuniary penalty for doing right, but I must say that when I have had to send a pound of absorbent wool, a roll of absorbent lint with iodoform gauze, bandages, and dressings for one patient who had an old ulcer of the leg, or to send 4s. 6d. to London for some thyroid elixir, because it must be fresh extracted to be potent, I felt that I was paying out of my pocket, and unjustly, money which the ratepayers expected to be paid by them.

The foregoing are reasons why the establishment of district dispensaries for the dispensing of drugs and appliances, found and paid for by the guardians, is necessary. I would, however, like emphatically to say—*such places should be dispensing places only*, and not outdoor departments, that is, dispensing and consulting establishments combined; for there the sick, ailing, weakly, malodorous, expectorating hordes are huddled together for long periods, waiting, in depressing companionship for consultations, later to be huddled into other seats

to wait a further long period for medicines to be dispensed. Definite consultation hours at the surgery of the district medical officer is a much better arrangement. The medical officer is to be found there; he gives two hours daily at his house, 9 to 10 in the morning, and 5 to 6 in the evening, for consultations, taking messages, and giving certificates. At the dispensary only one hour daily is generally given. The sick at the surgeries of the district medical officers are better separated than at the dispensaries, and after seeing the medical officer they would walk a little way to the dispensaries—which should be central to the districts concerned—and there get their medicines from a dispenser. At the surgeries of district medical officers patients are less huddled together. The doctor can give them more time and attention and keep better continuity with the case, and, what is more important, in emergency the sick quickly get at him at any hour of the day or night at his known residence. There is no need to wait until the dispensary opens again to communicate with him.

QUERY 3.—Can you suggest any improvement in respect of the subject-matter of Query No. 1 or Query No. 2? If so please state fully in what direction.

ANSWER 3.—My suggestions are as given above.

QUERY 4.—Do you consider the clerical work attached to your office is unnecessarily extensive? Do you carry out fully the requirements of the Orders and regulations of the Local Government Board, &c., in respect of the following matters?

(*a*) Sending of notices to local health authority in case of contagious, infectious, or epidemic diseases. (A.O., February 12th, 1879.)

(*b*) Keeping of the "District Medical Officer's Relief Book." (A.O., February 26th, 1866.)

(*c*) Giving of certificates specifying the ailments of paupers attended by you, when requested by the relieving officers or the paupers themselves. (G.O., July 24th, 1847.)

ANSWER 4.—Undoubtedly some clerical record of our work is necessary, but some of the present records are unnecessary, irksome, and take up time that might be more profitably used. I have had over 30 years' experience of parochial and parish district and hospital work in many counties in England. I never knew a parish medical register properly kept. It is known that medical registers are not examined properly at the board room, hence the doctor feels his time is too important to be wasted, and thinks it is not necessary to fill in every visit or bottle of medicine. He feels that a record of visits, of medicine given, or of surgery attendance generally is sufficient if it shows reliable attention. In the days when unqualified assistants were kept it might have been necessary to use red instead of black ink to distinguish between his work and the principal's, but in these days, when all visiting assistants and partners must be fully qualified, and have to be accepted as deputies, it is needless.

I strictly attend to (*a*) so far as the Infectious Diseases Notification Act requires; I attend to (*b*) except that my dispenser copies from my daily visiting book and keeps the record of medicines dispensed; and (*c*) Yes.

QUERY 5.—Any general observations, remarks, or suggestions as to the treatment of the sick poor would be appreciated.

ANSWER 5.—*It is only fair that the district medical officer should be paid by salary* for his professional services, and not have to find drugs and appliances. It is better he should be a part time officer in general practice—a doctor of standing and experience in the district—that is, if he is to have influence with the dirty and improvident. The knowledge of the usefulness and influence of the district medical officer over the poor is much misunderstood. His work is as often to stay poverty as it is to cure disease. Poor patients do accept advice from the doctor they would refuse from others; they look on him as their friend, confidant, and adviser. He understands their misfortunes as well as their ills, and their weaknesses of temperament, which form the key of many of their improvident deficiencies. They trust him because he is by training no supercilious puritan in judging them. This reliance on the doctor and his disinterested advice could be used to the greatest amelioration of poverty and sickness. He might be made what the State has wisely directed school medical officers to make themselves—viz., a "pervading influence." His education and professional skill gain the respect, I had nearly said reverence, of his poor, and should demand that he be recognised as a man worthy of proper reward. His work does not begin at 9 A.M. and end at 5 P.M., as ordinary workers, with half Saturday and Sunday for rest. His duties begin at 9 A.M. on Monday morning and continue night and day to the following Monday. He has no yearly holiday allowed. This injustice has never been squarely faced by guardians. Services begun by the profession, as benevolent aids to the poor, have been accepted as a right. The strained labour of the profession has been accepted without scruple. I respectfully hope the guardians will not allow this to continue now that, without the interference of the patient district medical officers, the inquiries of the Commission have called out against this abuse.

he salary should be adequate and not stinting. The work is heavy, exacting, and noble. Properly recognised, it is certain the service will see removed the reproach, "he is only the parish doctor." This is never uttered by the poor they serve, but by the richer people who do not see his work or sacrifices in a field where he has to do all the details, which in hospitals nurses and attendants do for the medical man.

It must never be forgotten that medical skill is, and will ever be, diagnostic, and not mechanical or stereotyped. Cases cannot be treated wholesale; each case requires original research and thought. Each case is a problem in itself; proper diagnosis is the key to short illness, and proper treatment by food, medicine, and sanitation shortens the period of parish relief in acute cases and prevents its recurrence.

In the Poor-law Commissioners' reports the suggestion of blending parish patients with contributory patients in a part-charity supported institution will do harm. The suggestion is the outcome of the London system of contract practice, and of club practice in the provinces, both practices unworthy the profession and the patients. If such are established they will increase the area of pauperism, degrade those who can pay, and stop the flow of benevolence.

I venture to suggest much more generous doles to respectable aged widows and men, especially valetudinarians. The most helpful thing would be the building of self-contained two-storey houses with open gardens, such as I have seen in Holland. Then, after classification, two or three persons of the same sex could be placed rent free in one of these domiciles or flats. The combined allowances of three persons would be spent more economically. For instance: one fire, one pie, one boiling of potatoes, one light; and many other things might be enumerated where one would serve three persons collectively better than three single persons in three rooms. Another advantage of this conjoint domicile would be that all would have companionship and show compassion one to the other in the passing sicknesses of age. They would give ordinary nursing to each other in slight indisposition. One or two rooms at the end of the buildings could be made into wards for more serious cases, requiring more serious nursing. If this was not more economical, it would at least take away the self-reproach one often feels because the stinted allowance given to respectable out-door aged men and women paupers is insufficient to keep them well, or to help them when they are ill.

More power is needed to get cleanliness in some houses and from some parish patients. Slatternly homes beget slatternly children, and they become slatternly mothers of future slatterns. Whilst seeing failure in dragooning the indolent into cleanliness, a system of loans of cleaning materials and of payment for scrubbing and whitewashing I am sure would have a two-fold effect. It would make the recipients of the loans feel they were earners, and often teach good habits, some of which would stick.

The present method of mending disease and leaving the originating causes to act again is indefensible. The Poor-law medical officer as a sanitary adviser could get much carried out better than other officers. If tactfully managed the poor would accept advice from the doctor better than from any other person.

I would like to say how impressed I am with the good effected in placing out nurse children with aged women. I know several instances where the foster boys have been all a son should be to an aged mother and where the woman has lavished her solicitude on the children's morals and worldly improvement with the greatest success. In fact, I have never known but one failure to get the greatest benefit and blessing to child and foster-parent in these cases.

May I lastly appeal to the guardians to increase the fee for attendance on parish patients at accouchements. It is not fair or reasonable to pay a fee below that paid to the midwife. The task is not the ordinary attendance. The work is done with often little light. The patient has few clothes and no cleanliness. The doctor sits hour by hour through the silent watches of night, saving life and helping the weak and suffering, and may demand a reasonable reward. District visiting nurses should be provided for accouchement cases. Such nurses should be exclusively used for labour cases. They should not be employed in dressing wounds or ulcers or in surgical cases. They should act solely under the direction of the doctor in charge. It may be accepted as a fact that these nurses have a greater influence on the habits of the poor than is supposed. They show the helpless how much nicer home is when clean, and their influence for good in many ways reaches far outside their passing visit and example.

Finally, the fees for extra surgical work require readjusting.

I have written fully because I feel legislation is coming on some of these lines.

Neither the questions of the Board of Guardians nor my answers, which in this publication of them have received a certain amount of emendation, cover the whole subject, but they mention many practical points and suggest some remedies. I submit them as a contribution to the complete discussion of the subject to which the columns of THE LANCET are clearly open, and with the idea that they may stimulate others who are directly interested towards some prompt and common course of action.

OPENING OF QUEEN ALEXANDRA SANATORIUM, DAVOS.—The British sanatorium in the Alps, for the successful completion of which the unceasing labour of the local secretary, Mr. H. C. Wrinch, has mainly to be thanked, will be open for the reception of patients at the end of this month, although the inaugural ceremony is to be postponed until the winter season. On the visiting staff are Dr. W. R. Huggard, H.B.M. Consul in Davos, Dr. Arnold F. Bill, and Mr. Florian Buol; and the resident staff consists of Dr. Joseph W. Noble as medical superintendent, and Dr. James Fairley as junior resident medical officer. The matron, Mrs. Teesdale, who for some years past had the entire management of the Davos Invalids' Home, will be assisted by a small staff of English nurses with home sanatorium training. Although each patient occupies a separate room, the inclusive charge is only to be 38*s.* per week. Only early or convalescent cases are eligible. A large number of applications having already come in, candidates should not delay obtaining forms from the local secretary in Davos, Mr. H. C. Wrinch, or from the honorary secretaries in London, Dr. William Ewart, 31, Upper Brook-street, W., and Mr. D. A. F. Vesey, 3, Camp View, Wimbledon Common, S.W.

THE VACCINATION ACTS AND THE GROWTH OF "CONSCIENTIOUS OBJECTION."

BY LEONARD B. CANE, M.B., B.C. CANTAB., M.R.C.S. ENG., L.R.C.P. LOND.,

ASSISTANT PHYSICIAN TO THE PETERBOROUGH INFIRMARY; DEPUTY PUBLIC VACCINATOR FOR THE PETERBOROUGH UNION.

THE effect of the recent changes in the Vaccination Acts upon the number of vaccinations has been already very marked. An examination of the returns for Northamptonshire reveals an enormous increase in the relative proportion of unvaccinated children, and there would seem no reason to doubt that the same tendency exists throughout the country.

The history of vaccination since its discovery as a prophylactic against small-pox over a century ago is so well known that I need only mention one or two salient points. In 1718 inoculation with small-pox virus was introduced from the East and became for a time very popular, especially after its adoption by members of our Royal Family, but unfortunately the artificially produced small-pox was found to be not only infectious but by no means free from danger to the subject of inoculation. For some time, however, cow-pox had acquired the reputation amongst West-country farmers of affording protection against the more serious disease; and in this belief one of them, Jesty by name, in 1774 actually inoculated members of his family with fluid from cow-pox vesicles. It was not, however, until 20 years later that this tradition was made the subject of a scientific inquiry by Dr. Jenner. In 1798 Jenner published the results of his investigations, and was supported two years later by leading members of the profession in London, and in 1802 by a Committee of the House of Commons. In 1807 the Royal College of Physicians issued a report based upon the results of several hundred thousand cases, to the effect that the protection afforded by vaccination, though not absolute, was a great security against the incidence and severity of small-pox, and that the process was in no respect injurious. Similar reports were issued also on the continent, with the result that in Denmark vaccination was made compulsory in 1810, in Sweden in 1816, and in Germany compulsion was subsequently extended even to revaccination. In every country of Europe and in America the practice spread rapidly. In England, however, it was not until 1840 that an Act was passed to provide the means of vaccination at the public expense, and even then compulsion was postponed for another 13 years. In 1853 an Act making vaccination compulsory was passed without opposition and it continued in force, with minor alterations and amendments in 1858 and 1867, until 1898.

By the Act of 1867, Section XXIX., every parent or guardian of a child was rendered liable to "a penalty not exceeding twenty shillings" for neglect to take a child to be vaccinated and subsequently inspected, unless he offered "a reasonable excuse for his neglect." It was not sufficient to have a general objection to vaccination, but the parent had to show *by legal evidence satisfactory to the magistrates that he had good ground* for believing that in that particular case vaccination would be injurious.[1]

In 1898 the Royal Commission issued its report, as a result of which calf lymph was substituted for arm-to-arm vaccination, and the "conscientious objection" clause was made law.

According to the Act of 1898, Section II., i., "no parent or other person shall be liable to any penalty ..... if within four months from the birth of the child he satisfies two justices or a stipendiary or metropolitan police magistrate, in petty sessions, that he conscientiously believes that vaccination would be prejudicial to the health of the child, and within seven days thereafter delivers to the vaccination officer for the district a certificate by such justices or magistrate of such conscientious objection." By this Act the parent was entitled to exemption if he *satisfied the magistrate that he believed* vaccination to be injurious *whatever his ground for such belief might be*.[2] This Act came into force on Jan. 1st, 1899, but the above section in August, 1898.

By the Vaccination Act, 1907, Section I., the parent is no longer required to appear before a magistrate to *satisfy him* either that he has a well-grounded (cf. 1867) or a possibly ungrounded (cf. 1898) belief that vaccination would be injurious to his child, but has merely to make "a statutory declaration that he conscientiously believes that vaccination would be prejudicial to the health of the child, and within seven days thereafter to deliver or send by post the declaration to the vaccination officer of the district." This Act came into force on January 1st, 1908, but a temporary Order to the above effect became law in September, 1907.

With this brief history in mind we can better review detailed statistics. The effect in the Peterborough Union of these changes in the law is shown in the accompanying table, in which the percentage of births in respect to which exemption orders have been obtained is shown for each half-year since the creation of conscientious objection by the Act of 1898.

TABLE A.—*Showing the Growth of Conscientious Objection in Peterborough.*

	Percentage of births.		Percentage of births.
1897.		*1903.*	
July–December ...	0·45	January–June... ...	4·2
1898.		July–December ...	3·1
January–June... ...	0·28	*1904.*	
(*Vaccination Act, August, 1898.*)		January–June... ...	3·0
July–December ...	1·2	July–December ...	3·5
1899.		*1905.*	
January–June... ...	1·1	January–June... ...	4·0
July–December ...	1·7	July–December ...	2·7
1900.		*1906.*	
January–June... ...	2·2	January–June... ...	3·8
July–December ...	2·4	July–December ...	3·0
1901.		*1907.*	
January–June... ...	2·7	January–June... ...	3·5
July–December ...	2·1	(*Vaccination Act, September, 1907.*)	
1902.		July–December ...	12·7
January–June... ...	2·1	*1908.*	
July–December ...	2·8	January–June... ...	23·7
		July–December ...	28·0

The table has been compiled from the half-yearly returns and not from the more accurate supplemental annual returns, in order to show the immediate effect of measures which came into force in the course of the year. In the final completed returns the number of certificates of objection received is in almost every instance slightly in excess of those noted in the preliminary half-yearly returns. These totals do not include the considerable number of cases which escape vaccination in some other way, either by refusal, by ill-health or death, or by removal to another district. It will be seen that since the important change made by the present Government in 1907 the growth of conscientious objection has been extremely rapid. Nor is the state of vaccination in this union by any means an isolated instance. The half-yearly figures for most of the other unions of Northamptonshire show a similar tendency. (Table B.)

TABLE B.—*Percentages of Births in respect of which Certificates of Exemption have been received.*

Unions of the County of Northampton.	1898 to 1902	1903	1904	1905	1906		1907		1908	
Brixworth	14·4	18·3	20·3	19·6	18·0	24·1	27·1	24·5	36·9	40·4
Daventry	15·0	12·9	14·8	21·9	17·2	17·9	25·5	26·0	45·5	45·2
Hardingstone	34·4	32·8	40·0	37·8	43·7	50·0	46·0	50·5	56·7	42·0
Kettering	21·4	42·3	47·3	55·5	55·0	61·5	58·3	67·4	69·4	74·3
Northampton	31·4	49·5	52·9	56·8	60·3	66·2	59·6	58·3	67·4	63·2
Oundle	3·3	5·0	1·4	5·0	7·4	6·8	4·0	12·0	10·3	21·2
Peterborough	2·1	3·6	3·4	3·7	3·8	3·0	3·5	12·7	23·7	28·0
Potterspury	27·4	24·1	25·6	27·4	29·2	40·1	29·2	44·2	58·8	65·1
Thrapston	43·8	43·5	34·5	37·9	40·4	48·0	37·0	52·4	54·7	62·0
Towcester	27·4	25·1	29·8	26·2	35·3	35·0	30·7	30·8	66·6	54·2
Wellingborough	22·4	42·4	46·1	39·0	36·5	31·9	40·4	52·3	63·0	67·0
Means	22·1	27·2	28·8	30·9	31·5	34·8	32·8	39·2	50·2	51·1

In some parts of the county the unvaccinated considerably exceed in number those upon whom this operation has been done; for instance, in 1907 the percentage of total living unvaccinated to the births during the year was in—

Hardingstone	54·5 per cent.
Kettering	67·0 ,,
Northampton	71·6 ,,
Thrapston	51·0 ,,
Wellingborough	63·5 ,,

[1] Fry's Law of Vaccination, seventh edition. [2] Ibid.

Doubtless similar results are obtainable throughout the country. It requires therefore but little imagination to foresee a time when vaccination will have become once again the exception rather than the rule. Already it is practically a voluntary act and parents are no longer required to show acquaintance with even the most elementary arguments for or against it, nor need they understand either the nature of the process or the reasons which have led to its adoption.

As Dr. T. Claye Shaw said, in a recent address: "We have remedies to hand which we know to be antidotal to certain contagious and infectious diseases, and yet we allow sentiment and ignorance to override the accomplished facts of science, and we place in the hands of illiterate obstinates the means of obtaining exemptions from treatment by the permits of a lay, and possibly a prejudiced, authority."[3] In these circumstances it is difficult to justify the large expenditure of time and money entailed in carrying out the Acts.

The attitude of the Local Government Board is inconsistent. Compulsory vaccination is either a protective measure beneficial to the whole community, or an act of doubtful utility imposed against the will of a large section of the people, to whom it appears but an unwarranted intrusion of an officious State into the freedom of the home. If the latter, then these laws are unjust, and the sooner they are repealed the better it must be for all; but if the Government really have faith in the experience of practically the entire medical profession, both in this country and abroad, and the conclusions arrived at by its own Royal Commission after nine years' continuous investigation, then it is its duty to safeguard the national health by increasing the stringency of the vaccination laws, so that in this country, as elsewhere, the disease which until a century ago was such a terrible scourge may be entirely stamped out, and the risk of such an expensive outbreak reduced to a minimum.

In conclusion, I wish to express my indebtedness to Dr. Charles E. Paget, medical officer of health of the county of Northampton, for his courtesy in allowing me the use of his published and unpublished returns up to the end of 1908, and to the vaccination officers of the various unions for supplying me with the most recent statistics for the purposes of this paper.

MOTORING NOTES.

BY C. T. W. HIRSCH, M.R.C.S. ENG., L.R.C.P. LOND.

The Latest 10-h.p. and 15-h.p. Napier Cars.

RECENTLY the writer was afforded an opportunity of examining and testing the latest versions of the Napier factory. Messrs. S. F. Edge, Limited, have for many years manufactured high-powered automobiles, and now in addition they are devoting their attention to the development of cars more suited to the pockets as well as needs of the medical profession. Prior to setting out on the trial run a rapid survey of the chief features of the vehicle was made. The fly-wheel is in front, so that 10 inches clearance is given, which owing to the position of the fly-wheel, is equal to at least 12 inches in a car of ordinary design, where the fly-wheel is behind the engine; the reason is that in driving this car over rough roads with lumpy surface, when the front wheels ride over an obstruction they lift the fly-wheel with them, as it is in front of the engine, whereas, when it is behind, the front wheels after riding over the lump drop the fly-wheel on the top of the rise. The engine, clutch, and gear-box are constructed in one unit; this permits of a three-point suspension, and ensures the absolute alignment of engine, clutch, and gear-box under all stresses or strains of the chassis. The clutch on the 15 h.p. is of the multiple disc type, and consists of metal to metal plates running in oil; it is placed in front of the gear-box, in fact is a part of it, but there is a septum between the two, so that the gear-box lubricant cannot enter, otherwise, of course, grit or chippings from the gears might pass in and cause damage to the plates. On the 10 h.p. a metal cone clutch is fitted. The 10 h.p. has a two-cylinder engine cast in one; the 15 h.p. has a four-cylinder engine, with the cylinders arranged in pairs. The cam-shaft and all the gearing are entirely enclosed in an aluminium and dust-proof oil-retaining case. One cam-shaft operates the inlet and exhaust valves, and they are interchangeable. The valve lifters have rollers where they come in contact with the eccentrics and are very solid forgings. Plates that can be easily detached are placed in front of the valve spindles and tappets, thus rendering them secure from dirt and foreign bodies. The crank runs on roller bearings, and these are well lubricated by splashing, as also are the pistons and gudgeon pins. Three rings are fitted to each piston; they are pinned, which absolutely eliminates all possibility of their working into line, but if the owner does his own repairs he may experience a little trouble when replacing his cylinder covers after lifting them off to remove carbon deposit, as the rings may ride on the pins. Still, with a little care this can be avoided.

Lubrication is by a gear-driven pump and the surplus oil is returned to the sump, from which the pump feeds, through a wire gauze strainer. In addition, an aluminium lubricating disc is attached to each web of the crank, which contains a scroll-shaped channel, very wide at the periphery of this ring and getting gradually smaller towards the crank-pin, which it enters through holes drilled for the purpose; oil is continuously pumped to the mouth of this channel, and is finally thrown out through the connecting-rod bearings by centrifugal force. A gauge is attached to the dash which verifies the correct working of the pump and lubricating system. The whole arrangement is economical and should prevent both under- and over-lubrication. A gear-driven centrifugal pump circulates the water, the pipes are of ample size, the radiator is efficient, and the valve ports of the engine are jacketed, so that overheating is well guarded against.

Ignition is by a Bosch high-tension magneto, which can be easily and rapidly detached and replaced, for by merely slackening of a thumb screw the stirrup which holds the magneto down on its bed can be removed and the magneto lifted straight out of its coupling. On the majority of these cars a magneto with a fixed firing point is supplied, but the makers will, if requested to, fit one with a variable timing arrangement, or what is even better, the Bosch dual ignition. This gives the advantage of a separate high-tension electric system and greatly facilitates starting, enabling the owner, when making short stops, such as a doctor does when calling professionally, to start off on the switch. It can also be used as a stand-by ignition in case of need; with it a coil and battery must be carried, but the magneto contact-breaker and distributer is employed in place of a separate commutator. The petrol is supplied by gravity, and I believe it would be an advantage if the petrol tank stopper was tapped to take the end of the tyre pump; then on a hill, if the quantity of petrol is low, the tank could be rapidly inflated and the carburettor kept supplied by pressure.

The carburettor has an annular float, which ensures a regular petrol level in the jet, no matter at what angle the chassis may rest, and the opening of the air-valve in the mixing chamber is governed by the speed of the engine. For ease in starting an arrangement is fitted on the dash to close the air-port below the jet, and an agitator can be worked by a rod that protrudes near the starting handle, so as to flood the float chamber on starting, and this obviates the need of opening the bonnet when this is needed. Three speeds forward and a reverse are supplied. The top drive is direct from the engine to the differential, without the intervention of any gear. In lieu of the usual dog clutch the two portions of the first motion shaft are made one by a pinion being fixed to one half, which engages with internal teeth on the other part. The change gear is on the now popular gate-change system; the advantage of this over the notched quadrant is that it is a more certain method of locking the gears; it also reduces the length of the gear-box, and enables the driver to slam the change-speed lever forward or backward safe in the knowledge that he has no notches to feel and possibly to overrun. Those who, with the quadrant variety, have through carelessness notched and spoilt their dog clutch on the top speed by letting the clutch in before getting the lever right home, will appreciate this. The throttle is controlled by a foot pedal situated near to the clutch; a spare control, working on a sector on the dash, is also fitted. Two independent sets of metal to metal brakes are provided: the foot one acts on the main shaft and the hand one on the hubs of the two back wheels; both are thoroughly protected from dust

[3] "On the Span of Life," Midsessional Address, delivered before the Abernethian Society, June 24th, 1909, St. Bartholomew's Hospital Journal, August, 1909.

and mud, and an accessible method for adjustment by hand is fitted. This is very important, as I have noted on many cars that the brakes are frequently not maintained in a state of efficiency, merely because the adjustment is difficult to get at. The frame is of channel section steel, narrowed at the forward end to give clearance for the two front steering wheels. The springs are of the semi-elliptical type, are long, and very flexible. Artillery pattern wheels are supplied, but in lieu of these detachable wire wheels may be had; personally I prefer the former and a Stepney wheel. 810 × 90 tyres are used for both the back and front wheels. Considering the weight of the car it would, I think, be cheaper in the long run if the 810 × 100, which fit the same rims, were supplied.

I took the 15 h.p. car for an eighty-mile run, first through London traffic, which is a good test of an engine's flexibility, and the way the car could be slowed down and could pick up speed when a course through the stream of vehicles could be found was most delightful, and this nearly always on the direct (top) drive—merely a release of the throttle pedal, and without slipping the clutch, we had a crawl; the depression of the throttle pedal, and we had a dart forward. The change gear worked easily and the clutch was smooth, and picked up sweetly. On hills she behaved very well, doing Reigate and a nasty climb near Burford Bridge with five up and a heavy landaulette body on the second speed, which is certainly good for so loaded a 15-h.p. engine. The steering was easy and did not affect one's shoulder muscles even after a long drive, which has not been the writer's experience with some other makes of cars. The brakes were tested both on up and down gradients, and were found to be of ample power. As to the springing, luxurious is the only word for it. Personally I am in the habit of driving frequently in a single cylinder, short chassis, rather rapid, runabout, and the difference was immense. Altogether this latest production of Messrs. S. F. Edge, Limited, is an extremely pleasing vehicle, and one well fitted for the medical profession, either with a landaulette body for town use, or a two- or four-seated touring body for the country. The chassis price of the 15-h.p. is £350, and that of the 10-h.p. £250. Messrs. Edge must have great faith in their productions, for whereas most makers merely give a guarantee of six, or perhaps 12, months, they give one extending over three years from the date of delivery.

A Point Worth Remembering.

Recently I was called professionally to see a street accident. A chauffeur had some difficulty in starting his car, and after lifting up the bonnet he flooded his carburettor, and then being in doubt as to whether his sparking plugs were all working, when the engine was running he shorted one with a screw-driver on to the frame; the result was that the petrol which had escaped when he flooded his carburettor exploded with the external spark he got when testing the plug. The moral, of course, is to be careful not to test the plugs if there is any petrol or petrol vapour about. Probably most motorists are aware of this danger, but the fact that a professional chauffeur learnt the lesson by a week's rest in a cottage hospital is my excuse for mentioning the point.

Oil-economisers.

In these days of buying oil in bulk, rather than in gallon cans, considerable saving of time and appearance of clothing may be effected by employing an oil-pump, by means of which the oil can be drawn from the cask and forced into a jug or convenient receptacle for handling. Recently while touring I noticed a neat form of pump for this purpose, which has been put on the market by a Warwickshire motor agent, but any pump with suitable pipe can be made to answer.

A Petrol Pourer.

With a great many of the cans in which petrol is sold there are difficulty, waste, and loss of time in getting the fluid into the tank. Messrs. Riches, of Store-street, London, have on sale what they call the perfect petrol pourer. It has various adapters, so that it can be fixed pretty well on any make of petrol can, is provided with a strainer, and as an air-tube is attached, it will be found a rapid and easy method of filling the petrol tank, especially if the latter is in an inaccessible position.

Good and Bad Cars.

Some matters worthy the consideration of all car purchasers are dealt with in a little booklet which Messrs. De Dion Bouton, Limited, of 10, Great Marlborough-street, London, will be pleased to send to anyone interested. The booklet contains a reprint of an article which was published in the *Autocar* under the title of "Good and Bad Cars," and emphasises the difference, on more than one occasion brought out in these articles, between really good cars and more or less indifferent ones. Both classes of car may be of good value, probably, for the money asked, but the lower priced chassis will not, as its novice owner fondly believes, be as good as the one which may cost, say, £100 more. The cheaper car may go as well *at first* as the other, but, as this brochure points out, after 5000 miles the more expensive one will need much less repair. In other words, this pamphlet professes to show that first-class cars are the cheapest in the end and that inferior cars are unreliable and unsatisfactory.

THE OPENING OF THE LONDON MEDICAL SCHOOLS.

Charing Cross Hospital Medical School.—The session opened on Oct. 4th, when Sir T. Clifford Allbutt presented the prizes. The Dean, Mr. F. C. Wallis, in his report made the following interesting remarks concerning a "London degree for London students":—"With regard to the new Royal Commission on the London University a letter, signed by all the medical schools, was sent to the Prime Minister in the sense of the following resolution:—

> That the Royal Commission, which the Senate of the London University has requested the Government to appoint, should be allowed to take evidence as to the means by which the medical degrees of the University might be made more accessible to London students.

This is a matter of grave, even vital, interest to the existence of the London medical schools, and I am quite sure if the public only could appreciate what it means a lively and profitable interest in this most important matter would be taken. At any other teaching school in the United Kingdom, outside this metropolis, any student can obtain a doctor's degree for the same amount of time and money that it takes the London student to get the double qualification, which, although an excellent one, does not carry with it the all-important title of 'doctor.' It may be said that it does not matter what a man's qualifications are if the man himself is good. But this is not true in practice, especially when a man is starting his career. In common with many others, I have received various letters from former students complaining bitterly of the fact that they are surrounded by men with doctor's qualifications obtained at either a provincial, Scotch, or Irish University, at no greater trouble and expense than it has taken the London man to obtain his double qualification, and, moreover, it has actually occurred that in advertising for candidates for posts at small provincial hospitals it has been stated that a doctor's degree is essential, thus effectively barring the London man with the double qualification. There is no doubt that the absolute medical examinations themselves for the London M.D. degree do not present any unusual difficulties to the ordinary examinee. The whole trouble lies with the matriculation examination, concerning which I could say much, but this is not the time or place to do so. The fact, however, is known to all of us, and will, I hope, be dealt with by the proper people when the evidence is taken at the Royal Commission. Now the practical result of all this, as it at present stands, is that our old students say, and one cannot blame them, that, much as they like their old school, and although they know of the many advantages in other ways which a student gets in London, still this stumbling block of a doctor's degree is so great that they neither send their own sons nor those of their friends to London, but recommend them to some provincial school where the facilities for obtaining a doctor's degree are made as easy as they are made impossible here in London. I say made impossible in London, for I am afraid that is what has been going on for years with regard to the London University, which, in this matter, has been held in subjection by a small body of men whom one would credit with larger minds and greater foresight than they seem to possess. Instead of such being the case, with a narrow and selfish outlook they cling to all the old difficulties of the London M.D. degree which has always made it a nightmare to the ordinary London medical student and is now rapidly ruining London as a teaching medical centre.

And thus all the splendid wealth of clinical material, all the facilities of obtaining the best medical education in the world, are being lost, ruined, and thrown away, because of the selfishness of a few and the apathy of the many. These things have been frequently written about in the medical press, but it is vitally necessary for the public to take up this matter and to do their best to protect their own interests by helping the medical schools of London to have the power to offer to the London medical student a degree which can be obtained with equal facility to any of the other degrees already mentioned. By this, and this alone, will London regain her lost position as the best medical school in the world." As regards the work of the school Mr. Wallis said: "Various changes have been made in the teaching in the surgery department, and a new departure has been made in the method of teaching surgery which I think will be most successful and will probably be adopted by other schools. It has been obvious for some time that the old method of imparting knowledge by a set of stereotyped lectures is ineffective, and that having regard to all that a student has to do in these days the less lectures of the old-fashioned type he has to attend the better, as he will have so much more time to give to clinical and other work which is of the first importance. Without wearying you with the details of the scheme, the practical result is that the minimum number of lectures will be given on the principles and practice of surgery and much more clinical surgery will be taught. As regards medicine, there have not been any particular changes in the method of teaching, and, indeed, it would seem as though none were required, as in the last examination 100 per cent. of the candidates from Charing Cross passed in this subject." Sir T. Clifford Allbutt delivered an address which we report on another page. In the evening a dinner of the past and present students of the hospital was held under the chairmanship of Dr. William Hunter. About 100 were present, the principal guest being Sir Clifford Allbutt.

King's College Hospital.—No opening ceremony was held at the College, but the annual dinner of the past and present students took place at the Waldorf Hotel on Oct. 1st, Mr. T. Hugh Smith, of Farningham, being in the chair. Of the hospital consulting and active staff the following were present: Dr. I. Burney Yeo, Dr. D. Ferrier, Professor W. Rose, Sir W. Watson Cheyne, Mr. A. B. Barrow, Dr. N. Dalton, Mr. A. Carless, Dr. Urban Pritchard, Dr. J. F. W. Silk, Dr. John Phillips, Dr. A. Whitfield, Dr. H. J. M. Playfair, Dr. G. B. Flux, Dr. R. H. Steen, Dr. J. C. Briscoe, Mr. F. F. Burghard, Mr. C. E. Wallis, and Mr. L. V. Cargill. Amongst the others present were Dr. J. Walters, Dr. C. H. Allfrey, Dr. S. Short, Dr. P. Lewis, Dr. G. E. Shuttleworth, Dr. C. P. Childe, Dr. W. J. Essery, Dr. E. Wood, Mr. Val. Matthews, Dr. J. Davidson, Dr. E. Thurston, C.I.E., and the secretaries, Dr. StClair Thomson, Mr. Peyton Beale, Dean of the School, and Dr. H. W. Wiltshire. There were 106 present. Mr. Smith proposed the toast of the evening, and in his remarks pointed out the immense amount of work which the student of the present day had to carry out in comparison with the student of past times, and also how much more strenuous his career had become. He also alluded to the fact that this was the first year of the school's existence as the Medical School of King's College Hospital. Previously it had been part of the Medical Faculty of King's College, London, but owing to the incorporation of that body with the University of London the medical school of the hospital, though still a school of the University, became independent. This was also necessary in view of the impending removal of the hospital to South London. He also alluded to the excellent examination results of the last few years. Dr. Walters, in replying, said that he was a student in the year 1853, and he gave some idea of the work of the hospital and its staff at that time, mentioning the names of Farre, Todd, and Partridge as great teachers. He said that he had no doubt whatever when the hospital was rebuilt at Camberwell and was able to expand its special departments, which were at present hopelessly cramped, its work would be better than it had ever been, and would come to occupy a premier position amongst London hospitals and medical schools. Thanks were returned to the committee and secretaries of the dinner, which was voted a great success by all present.

London Hospital Medical College.—The opening of the session was marked by a staff reception of old students in the library of the College on Oct. 1st. In the evening the annual dinner was held at the Savoy Hotel. Dr. F. J. Smith presided and was supported by Dr. Percy Kidd, Dr. A. H. N. Lewers, Dr. H. Russell Andrews, Mr. C. W. Mansell Moullin, Mr. E. Hurry Fenwick, Mr. T. H. Openshaw, Mr. Roxburgh, and other members of the London Hospital staff. A large company of old London men were present. The occasion marked several new departures: the usual musical accompaniment was conspicuous by its absence, as was the common long list of toasts and speeches, both welcome omissions, judging from the evident enjoyment of all who attended. After the usual loyal toasts had been given from the chair, Dr. Smith made the one and only speech, the "London Hospital." Having read various letters of apology from those prevented from attending, including one from the Hon. Sydney Holland, and another from an old student who had attended on these occasions for 54 years and now on account of failing eyesight was unable to do so, he referred to the losses which the hospital had sustained by the death of two of its most promising young members of the staff, and to the fact that Mr. Mansell Moullin was shortly joining the consulting staff. After a few words congratulating Sir Jonathan Hutchinson on his recent honour, Dr. Smith drew attention to the continued need for money to further medical education, so as to enable men to undertake research work, which they could not do if they had to earn their own living. Mention was made of the London Hospital Medical Club and its need, now that it was a medical benevolent institution, for support. There is no annual subscription, merely an entrance fee of £1, and during the year it has been the means of affording relief to various necessitous cases. Dr. Smith concluded his humorous speech by advising all "to play at musical chairs" and to walk round and renew old friendships.

Middlesex Hospital.—The seventy-fifth winter session of the Middlesex Hospital was opened on Oct. 1st by Lieutenant E. H. Shackleton, C.V.O., and Mrs. Shackleton. They were received in the board room of the hospital by members of the weekly board of governors and the honorary staff of the hospital. A guard of honour composed of the Middlesex Hospital Cadets of the University of London Officers' Training Corps was drawn up in the hospital garden. A large marquée erected over the tennis-court was filled to overflowing with the past and present students, the nurses and their friends, to the number of over 1000. The introductory address was delivered by Dr. J. Strickland Goodall on "Walking the Hospital" (see p. 1061). After the Dean, Dr. H. Campbell Thomson, had read his report for the past year Lieutenant Shackleton presented the prizes to the students and Mrs. Shackleton gave the Fardon Memorial medals to the nurses. Lieutenant Shackleton in a brief speech alluded to the medical department of his own expedition. He said they had three doctors with them, and they had come through without any deaths owing to their help. One man lost an eye, and for the purposes of the operation he had been stretched on a board among the ice. Another man lost a toe through frost-bite, and he still carried the toe about with him as a trophy. He mentioned the strange observation that in these extremely cold regions the rotifers were able to live and to multiply, and that observations on them since had shown that they continued to do so through very wide ranges of temperature. In regard to the temperatures of the members of the expedition, he stated that they suffered some curious changes. On the plateau they were often down to 93° or 94° F., but they became normal again after meals. It had been said that people never caught a cold in the Polar regions, and the members of his expedition did not do so until they opened a bale of clothing which had been packed up in England. The germs were there and they caught cold, but the cold disappeared when they went out, while those remaining in the hut continued to suffer. He and Mrs. Shackleton appreciated the welcome they had received, and he mentioned the *Nimrod* Exhibition which he hoped they would visit as the proceeds were to be given to charities. Lord Cheylesmore, chairman of the weekly board, proposed a vote of thanks to Dr. Goodall and to Lieutenant and Mrs. Shackleton. Prince Frances of Teck, who seconded, also entreated those present to go and see the *Nimrod* Exhibition, for part of the proceeds were to go to that hospital. He congratulated Lieutenant Shackleton on

returning safe and sound to this country and also upon his having chosen the South Pole instead of other places so that he had returned not only with honour but in peace. The annual dinner was held at the Empire Hall, Trocadéro Restaurant, on the same evening, Mr. John Murray being in the chair. A large number of old students were present, and several members of the lay board, including H.S.H. Prince Francis of Teck, Lord Cheylesmore, Mr. W. E. Gillett, chairman of the school council, Mr. Charles Davis, and Mr. Felix Davis, the total number present being over 170. After the usual loyal toasts had been honoured the Chairman proposed the toast of "Success to the Middlesex Hospital and Medical School." He referred to the air of vitality and activity which characterised the school, and alluded to the interest taken by the students in Mr. Haldane's Officers' Training Corps, to which they contributed 30 cadets. He also described the recent negotiations, now practically concluded, to secure jointly with St. Mary's Hospital a permanent athletic ground, and mentioned the recent generous donation from Mr. J. Bland-Sutton of £1000 to the fund for this purpose. Lord Cheylesmore, chairman of the weekly board, replied on behalf of the hospital. Dr. H. Campbell Thomson, the dean, replied on behalf of the school. He referred to the establishment of a special scholarship for students from New Zealand and announced that the outlook as regards entries at the school was even better than that of last year. Mr. Thomas Carwardine of Bristol replied on behalf of the old students, and Mr. H. G. Kilner, the senior Broderip scholar, on behalf of the present. The toast of "The Visitors" was proposed by Mr. Andrew Clark and responded to by Chevalier Wilhelm Ganz, who has for more than 42 years assisted at these dinners. The health of "The Chairman" was proposed by Mr. Bland-Sutton, and in his reply Mr. Murray expressed his gratification at the reception accorded him. The proceedings throughout were marked by great enthusiasm, and the frequent references to the growing prosperity of the school and to its increasing numbers were received with acclamation. In particular, allusions to the generous donation made by Mr. Bland-Sutton to the athletic ground fund, and to the untiring energy of the chairman in looking for a suitable ground, were accorded a warm reception, especially by the present students, who were present in considerable numbers and contributed in no small degree to the general enthusiasm and to the success of the evening. In response to general demands the healths of Prince Francis of Teck, Mr. Bland-Sutton, and the resident medical officer, Mr. A. E. Johnson, were informally toasted. An excellent musical programme was arranged by Chevalier Ganz, assisted by Mr. M. Sterling Mackinlay and Mr. Charles Ganz.

St. George's Hospital Medical School.—The opening ceremony was held on Oct. 1st, when Dr. H. D. Rolleston delivered an address on "St. George's and the Progress of Physic," which we published in our last issue. The annual students' dinner was held on the same evening at Prince's Restaurant, under the chairmanship of Mr. A. Marmaduke Sheild, consulting surgeon to the hospital, and proved a very successful function. A large gathering of old students was present, representing entries that in an appreciable number of cases must have been as much as 40 years apart. Mr. Sheild, whose presence among his old friends after his long and trying illness was welcomed by them with the greatest possible enthusiasm, achieved the difficult task of making a sympathetic, witty, and new speech in proposing the Royal toasts. Captain St. Leger Glyn proposed the toast of "St. George's Hospital Medical School," in reply to which the Dean, Dr. E. Ivens Spriggs, was able to report a continuance of the movement upward in the schools, and to lay upon the table an imposing list of honours and appointments gained by St. George's men during the year. Both these speeches were of good cheer for the future, while both showed the difficulties and anxieties which the authorities of the hospital, lay and medical, fiscal and educational, have had to surmount. Dr. Squire Sprigge proposed the health of Dr. Rolleston in the character of the orator of the day. Dr. Arthur Latham proposed the toast of "The Past and Present Students of St. George's Hospital," which was adequately responded to by Dr. C. D. B. Hale and Mr. H. Pinto Leite. Mr. F. Jaffrey then voiced the feeling of the assembly in his speech proposing Mr. Sheild's health, in which he expressed the great pleasure it was to St. George's men to see among them again their brilliant and popular surgeon, so long laid aside by illness incurred in the discharge of his hospital duties. Mr. Sheild's brief reply brought a very successful dinner to a conclusion.

St. Mary's Hospital Medical School.—The session was opened on Oct. 1st by the distribution of prizes which was performed by Dr. H. A. Miers, Principal of the University of London, who delivered subsequently an address on "Theories." In the evening the annual dinner of past and present students was held at the Café Royal, where over 130 past and present students assembled and spent a very pleasant evening, the enjoyment of which was heightened by the unusual brevity of the speeches and the uncanny behaviour of that caustic magician Dr. Byrd-Page. Dr. Milner M. Moore, who occupied the chair, in proposing the toast of his old hospital and medical school, recalled the fact that he was one of the oldest of St. Mary's students, since he passed his hospital days in the early "sixties," a confession in which it was difficult to believe. The toast was replied to by Mr. H. A. Harben, chairman of the hospital board, and Mr. W. H. Clayton-Greene, Dean of the Medical School. Mr. Harben alluded to the harmonious relations existing between the hospital and the school and the desirability of the present arrangements which allowed the teachers of the preliminary sciences to keep in close touch with the clinical work of the hospital. Whilst he rejoiced at the recent opening of the Clarence wing for 31 patients under therapeutic inoculation, he referred to the not far distant prospect of a State or municipal subsidy of the voluntary hospitals. The Dean outlined in a quick and lucid speech the recent progress of the school. He was able to announce a satisfactory entry for the coming session and an excellent record of achievement in the past year. The most notable success was gained at the last examination for the Fellowship of the Royal College of Surgeons of England, when five men went up and were all successful. The Henriques operating theatre had been in use for a year and the fund which had been raised by the students for the permanent endowment of a cot had attained its object. Probably the most important feature of the year from the point of view of the school's future was the successful issue of the negotiations to purchase an athletic ground at Park Royal in conjunction with Middlesex Hospital; the desirability of this arrangement was guaranteed by the happy relations which had existed between the two schools during their joint tenancy of a ground at Wormwood Scrubbs for the past four years. The school was in the enjoyment of a prosperity somewhat remarkable in relation to the size of its hospital, and its future might be faced with considerable hope and confidence. Mr. Clayton-Greene expressed his warm thanks to Mr. Harben for his continual devotion to the interests of the medical school, and to Mr. B. E. Matthews, the secretary, who put such good work into its administration, and finally he alluded in sympathetic terms to the illness of Dr. H. A. Caley, his predecessor, who had laboured unsparingly in reorganising the school during the most critical period of its existence and to whom its present state was so largely due. He hoped that before long St. Mary's would welcome Dr. Caley back to his work again, a wish warmly endorsed by his audience. The "Health of the Visitors" was proposed by Mr. J. E. Lane in a witty little speech, and responded to by Dr. H. A. Miers, the "opening lecturer" of the afternoon, who said that such a gathering was encouraging to him, since it showed him the real existence of a collegiate life in the University of which he was principal. He also alluded to the recent renewal of negotiations between the Royal Colleges and the University in the endeavour to make the London degree more accessible to all London medical students. The last toast, that of the Chairman, was given by Dr. Sidney P. Phillips, and after Dr. Milner Moore's response the gathering split itself up into groups of contemporaries who were not silent concerning old times at St. Mary's.

St. Thomas's Hospital Medical School.—The opening of the session was marked by the annual old students' dinner which took place at the Hôtel Cecil on Oct. 1st. Mr. J. B. Lawford was in the chair, and the company of 145 included the following guests of the committee: Surgeon-General W. L. Gubbins, A.M.S., Mr. C. T.

Harris, J.P., the Rev. A. O. Hayes, Mr. J. A. Jennings, Professor W. Osler, Dr. J. Priestley, Mr. G. Rendle, Mr. G. Q. Roberts, Mr. G. S. Saunders, and Colonel D. Wardrop, A.M.S. After the usual Royal toasts, the chairman, in proposing "St. Thomas's Hospital and Medical School," referred sympathetically to the absence, owing to illness, of Mr. Wainwright (the treasurer) and Mr. H. H. Clutton (the senior surgeon). He also deplored the untimely death of our late editor, Thomas Wakley, a distinguished St. Thomas's man, who was in the chair at last year's dinner. The toast was responded to by Mr. C. T. Harris (almoner to the hospital) and by Mr. Cuthbert S. Wallace (Dean of the Medical School). Mr. Harris congratulated the hospital on the opening of the new female medical ward, amongst other improvements, and on the near prospects of the opening of the new maternity ward. He also hinted at the possibility of further improvements in the out-patient department. Mr. Wallace, in a short but racy speech, recounted the numerous successes of the hospital year, both academic and athletic. The last toast of the evening was that of "The Chairman," proposed eloquently by Dr. H. R. Hutton and received with acclamation. In the course of the evening Mr. Barclay Gammon gave a humorous sketch, which was highly appreciated.

University College Hospital and Medical School.—The session was opened on Oct. 1st, when Sir John Tweedy delivered an introductory address (see p. 1060). In the evening the annual dinner of the old and present students was held at the Gaiety Restaurant, Strand. Mr. A. Pearce Gould, senior surgeon of the Middlesex Hospital, occupied the chair. 126 diners were present. After the toast of "The King," Mr. A. E. Barker, senior surgeon of the hospital, proposed the toast of "The Navy, Army, and Auxiliary Forces," to which Major C. G. Spencer, R.A.M.C., professor of military surgery at the Royal Army Medical College, responded. Major Spencer, in his speech, gave a short but very interesting outline of the scheme with regard to the Special Reserve service. At the beginning of his speech, in which he proposed the toast of "The University College Hospital and Medical School," Mr. Pearce Gould referred in touching terms to the recent sad death of Dr. Radcliffe Crocker, for many years physician in charge of the skin department at the hospital. His remarks, which were full of reminiscences of his old school and teachers, were listened to with rapt attention. Dr. H. Batty Shaw, Dean of the medical school, replied in suitable terms. The toast of "The Chairman" was proposed by Sir Thomas Barlow, senior physician of the hospital.

Other Hospitals.—At St. Bartholomew's Hospital and the Westminster Hospital Medical Schools, although the usual annual dinners of past and present students were held, there were no opening addresses nor other formal inaugural proceedings of the school session.

INFANTILE MORTALITY IN ALEXANDRIA.[1]

AN exceedingly interesting and instructive report on infantile mortality in Alexandria has recently been presented to the municipality by Mr. E. G. Carpenter, medical officer of health of the city. The first paragraph of the report is calculated to convince one of the necessity for such an investigation and to bring home to the most sceptical the appalling waste of infant life in one of the most Europeanised towns of Egypt. We read that "between January 1st, 1902, and December 31st, 1907, 83,404 children were born, and of this number 24,948 died," or, as Mr. Carpenter aptly puts it in the original French, "were mowed down [*fauchés*] in their first year of life." These figures represent a mortality of 30 per cent., and an instructive comparison is made with statistics of other countries on the same subject. For this purpose the several years are examined in detail, and it is found that the average mortality for the six years is 288 per 1000 births. This figure is only exceeded by Chili with 326. Then follow Russia with 268, Austria with 224, Roumania with 218, England 150, Scotland 126, Ireland 103, down to New Zealand, which has the best record with 79. Further, as compared with some of the larger cities in England, Alexandria with her 288 compares very unfavourably with London 141, Manchester 177, Birmingham 184, and even with Preston 244 and Blackburn 207. The two last named are notorious for their infantile mortality, due, it is said, to the large number of women employed in the cotton mills. Similarly, the poorest quarters of London show a better average than Alexandra; thus Whitechapel is 123, Mile End 126, St. George 141, and Limehouse 168.

Turning now to the period of infancy in which death occurs, tables are given showing in detail the mortality in the first month, between the first and the third month, between the third and the sixth month, and between six and 12 months. It has been noted that there is a severe mortality in the first month, with a decrease in numbers between the first and third month, and after that a further increase. Comparatively again, in 1904, for every 1000 births, 29 died in the first month in New Zealand, as against 78 in Alexandria; and, in the period from six to 12 months, whereas only 14 died in New Zealand, the mortality in Alexandria amounted to 129. This figure does not vary appreciably in the different years under review, and approximately 40 per cent. of the deaths occurred before three months, 20 per cent. between three and six months, and 40 per cent. between six and 12 months. In January the deaths under one month are high in comparison and those between six and 12 months are low, but in July exactly the contrary is the case. The death-rate of infants under one month steadily diminishes from January to July and then progressively increases to the end of the year, while the mortality between six and 12 months increases from January to July and then diminishes month by month. The deaths between one and three months remain almost stationary throughout the year, but tend to follow the same variations as those under one month, and those between three and six months more closely follow the curves of the period between six and 12 months. Taking the totals of the six years, 10·6 per cent. died in January and 5·15 per cent. in June, the birth-rate at the same time being respectively 9·77 per cent. and 6·75 per cent.

Putting the results in the form of curves, it appears that the curves of births, still-borns, and deaths below one month are identical; but there is a diminution of the curve in the middle of the first year and an increase towards the end. This is natural, as the birth-rate increases and there is more likelihood of still-born or premature births. In England the births are more or less evenly distributed throughout the year, with a slight increase in June and July; but in Alexandria more children are born in November, December, and January than in any of the other months, and fewest of all in May, June, and July—a curious fact for which Mr. Carpenter cannot offer any explanation. The proportion of still-births is 4·15 per cent., as compared with 4 per cent. in England. The curves for the periods from three to six months and from six to 12 months show an appreciable increase during the summer months, attaining their maxima in July, owing to the prevalence of diarrhœa. A similar rise occurs between the first and third year of life. Taking a total of 21,852 deaths under ten years, 11,483 were boys and 10,369 were girls, being in the proportion of 1·10 to 1.

Coming now to the diseases contributing to this excessive mortality, Mr. Carpenter gives further lengthy tables which bring him to the conclusions that the majority of deaths are due to (1) prematurity, lack of development, and marasmus; (2) diarrhœa of various forms; and (3) bronchitis and pneumonia, especially the two former. Of 12,653 deaths during 1905–07, 10,899 were due to these three causes. Comparing the general causes of mortality with English figures for the same period, Alexandria stands fairly well, and has also only one-third as much tuberculosis as England; but, on the other hand, there is three times as much mortality from diarrhœa, twice as much from marasmus, three times as much from rachitic diseases, and twice as much from bronchitis. In the three years in question, of a total of 7994 deaths 3892 were due to diarrhœa. Mr. Carpenter ascribes the mortality arising from prematurity, feeble development, and marasmus to ignorance and neglect of the hygiene of pregnancy on the part of the mother. The bad effects of this neglect as a factor in infantile mortality are particularly noticeable in the first month of life, diarrhœa becoming more prominent as a cause in the later months. Mr. Carpenter finally recommends

[1] Rapport sur la Mortalite Infantile. Addressed to Professor Gotschlich, sanitary inspector of the municipality of Alexandria, by E. G. Carpenter, D.P.H. Cantab., F.R.C.S. Eng. Société de Publications Égyptiennes, Alexandria. 1909.

the establishment of a maternity home and a stricter supervision of midwives, by whom almost every native woman is attended, and the appointment of lady health visitors, who shall be qualified midwives, specially trained in the principles of infant feeding and general management of infants, whose duties shall be to visit each lying-in mother and give such advice on these matters as may be necessary. He considers that the cause of the diarrhœa is contamination of the food, either by flies or dust, and recommends the establishment of *gouttes de lait* throughout the town for the supply of good and clean milk, as well as certain improvements in the sanitary administration of the town generally.

The report is a very valuable statistical record and must have entailed an enormous amount of work. Many will hold that Mr. Carpenter's recommendations for the prevention of this awful mortality are not practical measures, taking into consideration the people with whom he has to deal. It is the old story of the Ethiopian who cannot (and will not) change his skin (or his customs engrained in him for centuries). The absolutely filthy habits, both personal and domestic, of the lower class native, and their colossal ignorance of, and indifference to, all matters hygienic and sanitary, render reasonable recommendations for their improvement nearly futile; while their deep-rooted objection to soliciting medical help till the case is *in extremis* makes the question of their salvation even more difficult. This has to be remembered, for it is true that so long as "Kismet" ("It is the will of God") continues to be the solace for all earthly sorrow or disappointment of any kind, our crusade against the awful waste of infant life in Egypt will be altogether unavailing. But vigorous endeavour will in the end, it is to be hoped, lead to good result.

Looking Back.

FROM

THE LANCET, *SATURDAY*, Oct. 8th, 1831.

The mass of the middle classes of society has begun a great movement in the acquisition of knowledge, in the discovery of rights, in the conviction of absurdities, and in virtue and liberality of sentiment. The higher orders see the impossibility of arresting this progress, and titles and decorations will no longer command even notice unless supported by real excellence. Among the higher ranks are some who, so far from viewing this movement of other ranks with dread, step forward to promote it, and the share taken by some of exalted rank and office in the foundation of this University demonstrates a liberality and generosity which will ever do honour to England, and which are worthy of all imitation. So ought physicians to act towards the general practitioner, to make every effort to improve his general education and his professional knowledge. In fact, all those who lecture or practise at public institutions act, whether they will or not, contrary to the narrow views of interest. For they are occupied in imparting knowledge to the rising generation of general practitioners; occupied in making them as learned as themselves. In *me* such narrow views would be the height of baseness and ingratitude; for I hesitate not to avow,—I rejoice in this public opportunity of declaring, that to the general practitioners of England, Scotland, and Ireland, I am indebted for my professional success. When I commenced my professional career, I determined upon trusting for success to working hard, and to conducting myself as well as the infirmity of human nature would allow. I determined, however long I might wait for success, never to fawn upon and run after my superiors, nor to stoop meanly to my inferiors; never to intrigue for an advantage, nor to employ trumpery artifices for making myself known to the public. For many years I toiled and saw many of my contemporaries, nay of my juniors, who worked less but were wiser in their generation, pass by me. I published work after work, edition after edition, and paper after paper was honoured with a place in the *Transactions* of the first medical society in Europe: I was physician to a large metropolitan hospital, and had attended there and gratuitously out of doors above 20,000 patients. But in vain. In 1828, my profession was no more lucrative to me, was as short of my actual expenses as it had been in 1818. At that time THE LANCET was pleased, now and then, to publish a clinical lecture delivered by me at St. Thomas's, and my practice at once doubled. The following year it published the greater part as I delivered them, and my practice doubled again. Last season THE LANCET published them all, and my practice was doubled a third time. This astonished me the more, as my clinical lectures were generally delivered with little or no premeditation, while all I published myself had cost me great labour, many a headach, and much midnight oil. It was through the general practitioners in the large majority of instances, and through general practitioners for the most part with whom I had not the honour of any acquaintance, that the publication of those lectures accomplished my success. To the body of general practitioners, therefore, I owe a debt of gratitude. They have called me forth spontaneously, from no interested motive, and I cannot exert myself too much in the education of their successors.[1]

Public Health.

REPORTS OF INSPECTORS OF THE MEDICAL DEPARTMENT OF THE LOCAL GOVERNMENT BOARD.

On the Appointment of the Medical Officer of Health and on the Sanitary Circumstances and Administration of Gravesend, by Dr. R. J. REECE.[2]—The old borough of Gravesend, which in 1851 had a population of 16,600, has now about 30,000 inhabitants, of whom a small portion live on the water and some 800 in the garrison and fort. The population consists to a large extent of pilots, seamen, and bargemen, together with dock labourers who work on the opposite side of the Thames at Tilbury. There appears to be an adequate supply of working-class dwellings, and of a total of 6067 houses in the borough some 60 per cent. are rated under £15 per annum. The sanitary history of Gravesend has been well recorded in previous reports to the Local Government Board, notably by Mr. Netten Radcliffe in 1877 and by Sir Shirley Murphy in 1885, and is now brought to date in a comprehensive report by Dr. Reece. This report, like its predecessors, lays stress upon the various disadvantages, from a sanitary point of view, which result from the cesspool system. Gravesend is one of the few large towns remaining in England where practically every house has its cesspool and where new cesspools are dug as new dwellings are erected. Many years ago a material proportion of the houses obtained water from wells sunk into the chalk by the side of the cesspools, but in more recent times all these wells have been disused, or in some cases have been themselves turned into cesspool overflows. The water of the town is supplied by the Gravesend and Milton Waterworks Company from wells sunk into the chalk at Windmill Hill, the highest point in the borough. In these wells water is reached at a depth of 114 feet from the surface, and the supply is augmented by various lateral adits which have been driven at the bottom of the wells. Judged from chemical analysis the water is of high organic purity, but in view of the extensive contamination of the chalk in the neighbourhood the underground water which reaches these wells cannot be regarded as free from risk. On this view Dr. Reece speaks with approval of the present intention of the company to construct new wells about three miles from the borough. Calculating from the daily consumption of water per head, and allowing for the fact that rain from roofs gains access to many of the cesspools, Dr. Reece estimates that a total of over 220,000,000 gallons of sewage reaches these receptacles each year. From local data regarding the emptying of cesspools, however, it appears that only some three or four million gallons are annually removed by pumping and scavenging; the balance must find its way into the Thames or remain in the chalk to the danger of the wells of the water company. These considerations are, of course, not the only or the most obvious of the sanitary

[1] Excerpt from Introductory Address to a Course of Lectures on The Principles and Practice of Medicine by Professor Elliotson, M.D., delivered at the University of London, on Wednesday, Oct. 5th, 1831.

[2] Reports on Public Health and Medical Subjects. New series. No. 15. London: Wyman and Son, Fetter-lane; Edinburgh: Oliver and Boyd; Dublin: E. Ponsonby. Price 5*d*.

objections to the system, and on review of the circumstances generally the report strongly recommends the abolition of the cesspools and the substitution of an efficient system of sewers in those parts of the town which are at present unsewered. The present sewers, which convey mainly surface water but also receive the discharges from some house drains and water-closets, have an outfall into the river. Adherence to the cesspool system has not saved the Gravesend authorities from difficulties in regard to sewage disposal, and an appeal is now pending to the High Court in an action taken by the Thames Conservancy against the town council for polluting the Thames. Among other points to which the report directs attention is the need for closing various insanitary dwellings and demolishing those which are incapable of repair; the state of the slaughter-houses, not one of which, "either from position, construction, or condition, is fit for the slaughtering of animals for the food of man"; and the need for improvements in arrangements for dealing with cases of infectious disease. The most pressing need of the town appears to be that of securing the services of a medical officer of health who is free from the trammels of private practice and who will be responsible for the direction of the work of the sanitary staff. The latter needs strengthening by the appointment of an additional inspector whose qualifications should include experience in food inspection. A good opportunity of making the desired reform will shortly be afforded, as the present medical officer of health of Gravesend is about to retire from the office, and the appointments for the neighbouring areas of Northfleet and Strood are due for reconsideration by the local authorities concerned. By combined action in these districts the appointment of a medical officer of health to give his whole time to public duties could readily be secured. In the neighbourhood of Gravesend a practical example of the advantage of this course is to be found in the Milton combination, which some years ago was in similar circumstances effected, at the instance of the Local Government Board, for the purpose of the joint appointment of a medical officer of health.

ANNUAL REPORTS OF MEDICAL OFFICERS OF HEALTH.

Report on the Health of Belfast for 1908.—Mr. H. W. Bailie, superintendent medical officer of health of Belfast, has just issued his report on the health of the city of Belfast for 1908, the main facts of which may be summarised as regards figures as follows: The area of the city is 16,504 acres, the population 380,344, and the density 25·8 persons to an acre. The birth-rate was 29·7 per 1000 and the total mortality 19·5 per 1000. The infantile death-rate was 147 per 1000, the zymotic 1·8, and the phthisis death-rate 2·3 per 1000. The number of cases of infectious diseases notified was 3·6 per 1000 of the estimated population, which is less than in 1907, and much less than the average for the ten years 1898–1907. The death-rate is 1·8 below that of 1907 and 1·7 below the average of the previous ten years; that is, a saving of 634 lives as compared with 1907. Although the zymotic death-rate is higher than in 1907, there is a reduction in mortality from each of the principal zymotic diseases as compared with 1907, except typhus fever, pertussis, and diarrhœa. 82 fewer cases of enteric fever were notified than in 1907. It is interesting to read that while there has been a slight fall in the birth-rate in Belfast for several years, it has not been so marked as in many of the great cities of Great Britain, the average rate for the 76 great towns of England and Wales having fallen to 27·0 per 1000. The rate in Belfast for 1908 (29·7) is the lowest ever recorded for the city, the average rate for the 10 years ended 1908 being 31·1. Of the total deaths—7523—there were 1258 from tuberculous diseases (880 from phthisis and 378 from other forms of tuberculosis), 1210 from diseases of the respiratory system (exclusive of pneumonia), 753 from pneumonia, 281 from cancer, 260 from diarrhœa, 186 from measles, and 137 from whooping-cough. There were only 57 deaths from typhoid fever, 33 from diphtheria, 10 from typhus fever, and four from scarlet fever. It is a remarkable fact that while the deaths from scarlet fever, diphtheria, typhoid fever, phthisis, and other forms of tuberculosis were less in 1908 than in 1907, there was an excess in diarrhœa, pneumonia, diseases of the respiratory organs (exclusive of pneumonia), and cancer. Indeed, during the last three years malignant disease is steadily increasing. It is a most deplorable fact—rendering this report in many respects useless—that while the causes of 4356 deaths are briefly reviewed, "the causes of the remaining 3167 deaths, with the exception of 66 due to cerebro-spinal meningitis, are not accounted for, nor is there any means at my disposal for obtaining these necessary details, and there is no official method for obtaining the name, address, or nature of the illness which caused the death of any individual during the past year" (p. 23 of the report). This lamentable state of affairs, so strongly animadverted upon by the Belfast Health Commission and so frequently pointed out by the late medical superintendent in his reports, still continues. Every excuse is put forward by the corporation for such a culpable state of ignorance of the very A.B.C. of public health but the real one, which is the fact that by promoting a Parliamentary Bill on the question they could have made matters right at any time during the past ten years. In reference to infantile mortality (147 per 1000 births) there is plenty of work to be still done, but it is regrettable to read that "the difficulty of analysing closely the causes of the excessive infantile mortality-rate is rendered impossible by the exceptional circumstances existing in Irish cities, that is, that the medical officer of health does not receive returns showing the number of deaths, with addresses and causes, whereas in English and Scotch cities these returns are made weekly" (p. 89 of the report). It is satisfactory to record that the very high death-rate from infantile mortality in 1908 is diminishing in 1909 so far, but we know the cause largely from returns of the registrar of city cemeteries (pp. 92 and 93 of the report), and generalisations based mainly on such statistics alone do not give the scientific accuracy that is needed to adopt preventive measures. The details in the report as to national schools show that marked improvements have been effected in their sanitary condition. The report contains a great deal of interesting information, but is sadly vitiated by the want of knowledge of the causes of death in so many instances, a state of affairs for which the medical officer of health is not responsible; but it is a disgraceful condition of matters that in a great city like Belfast, with a population of 380,344, out of 7523 deaths occurring in 1908 the causes of 3167 (with the exception of 66 due to cerebro-spinal meningitis) are not accounted for, while the medical officer of health has no means at his disposal for obtaining these details.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

IN 76 of the largest English towns 7626 births and 3879 deaths were registered during the week ending Oct. 2nd. The annual rate of mortality in these towns, which had been equal to 13·0 and 12·6 per 1000 in the two preceding weeks, further declined to 12·3 in the week under notice, and was lower than in any week since the middle of August. During the 13 weeks of the past quarter the annual death-rate in these towns averaged only 11·9 per 1000, and in London during the same period the rate did not exceed 11·4 per 1000. The lowest annual rates of mortality recorded in the 76 towns last week were 4·9 in Hornsey, 5·6 in Rotherham, 6·5 in Willesden, and 6·9 in Walthamstow; the rates in the other towns ranged upwards, however, to 17·6 in Great Yarmouth, 18·7 in Huddersfield, 19·1 in Burnley, and 20·0 in Oldham. In London the recorded death-rate last week did not exceed 11·6 per 1000. The 3879 deaths in the 76 towns last week showed a further decline of 94 from the numbers returned in the two preceding weeks, and included 431 which were referred to the principal epidemic diseases, against numbers declining steadily from 849 to 509 in the five preceding weeks; of these 431 deaths, 263 resulted from diarrhœa, 55 from whooping-cough, 43 from diphtheria, 32 from scarlet fever, 21 from "fever" (principally enteric), and 17 from measles, but not one from small-pox. The 431 deaths from these epidemic diseases last week were equal to an annual rate of 1·4 per 1000, a lower rate than in any week since the middle of August. No death from any of these epidemic diseases was registered last week in East Ham, Hornsey, Aston Manor, West Hartlepool, or in five other smaller towns; the annual death-rates therefrom ranged upwards, however, to 3·3 in Sunderland, 3·5 in Rhondda, and to 5·3 both in Bootle and in Hanley. The deaths attributed to diarrhœa in the 76 towns, which

had in the five preceding weeks declined from 676 to 348, further fell last week to 263, but caused annual death-rates ranging upwards to 2·2 in Handsworth, 2·3 in Hull, 3·1 in Rhondda, and 4·5 in Bootle. The fatal cases of whooping-cough, which had been 73, 59, and 51 in the three previous weeks, rose again to 55 last week; the highest annual rates from this disease during the week being 1·1 in Swansea and 1·2 in Wigan. The 43 deaths from diphtheria showed a further increase on the numbers returned in recent weeks, and included 14 in London and its suburban districts, three in Hanley, three in Birmingham and King's Norton, and three in Manchester and Salford. The 32 fatal cases of scarlet fever also showed an increase; 13 occurred in London and its suburban districts, three in Birmingham, four in Manchester and Salford, and two in Stockport. The 21 deaths referred to "fever" exceeded the number in the previous week by four, and included three in Manchester and Salford, three in Sheffield, and two in Sunderland. The 17 fatal cases of measles showed a further considerable decline, and were fewer than in any previous week of this year. The number of scarlet fever patients under treatment in the Metropolitan Asylums and the London Fever Hospitals, which had steadily increased in the five preceding weeks from 2347 to 2686, had further risen to 2737 on Saturday last; 373 new cases of this disease were admitted to these hospitals during last week, against numbers increasing steadily from 245 to 438 in the six preceding weeks. Of the 1079 deaths registered in London last week, 132 were referred to pneumonia and other diseases of the respiratory system, against 130 and 149 in the two preceding weeks, and were equal to the corrected average number in the corresponding week of the five years 1904–08. The causes of 26, or 0·7 per cent., of the deaths registered in the 76 towns last week were not certified either by a registered medical practitioner or by a coroner. All the causes of death registered during last week were duly certified in Leeds, Bristol, West Ham, Bradford, Newcastle-on-Tyne, Hull, and in 55 other smaller towns; the 26 uncertified causes of death in the 76 towns last week included seven in Birmingham, five in Liverpool, and two in St. Helens.

HEALTH OF SCOTCH TOWNS.

In eight of the principal Scotch towns 814 births and 470 deaths were registered during the week ending Oct. 2nd. The annual rate of mortality in these towns, which had been equal to 12·1 and 13·8 per 1000 in the two preceding weeks, declined again to 13·1 in the week under notice. During the 13 weeks of the past quarter the annual death-rate in these Scotch towns averaged 12·6 per 1000, and exceeded by 0·7 the mean rate during the same period in the 76 large English towns. The annual death-rates last week in these Scotch towns ranged from 8·5 and 9·4 per 1000 in Perth and Greenock to 17·6 in Paisley and 17·9 in Dundee. The 470 deaths from all causes in the eight towns showed a decline of 24 from the number returned in the previous week, and included 48 which were referred to the principal epidemic diseases, against 47 and 52 in the two preceding weeks. These 48 deaths were equal to an annual rate of 1·3 per 1000, which was slightly below the mean rate from the same diseases last week in the 76 English towns. The 498 deaths from these diseases in the Scotch towns last week included 22 from diarrhœa, eight from diphtheria, seven from "fever," six from scarlet fever, and five from whooping-cough, but not one either from measles or small-pox. The deaths attributed to diarrhœa in the eight towns, which had steadily declined in the five preceding weeks from 47 to 20, rose again to 22 last week, of which nine occurred in Glasgow, eight in Edinburgh, and three in Leith. The eight deaths from diphtheria corresponded with the number in the previous week, and included four in Glasgow and two in Edinburgh. Of the seven deaths referred to "fever," of which five occurred in Glasgow, and one each in Aberdeen and Paisley, five were certified as cerebro-spinal meningitis, and one each as enteric and typhus. The six fatal cases of scarlet fever included two both in Glasgow and in Edinburgh; and three of the five deaths from whooping-cough occurred in Edinburgh. The deaths referred to diseases of the respiratory system in the eight Scotch towns, which had been 25, 41, and 59 in the three preceding weeks, further rose to 66 in the week under notice, and exceeded by five the number in the corresponding week of last year. The deaths returned in the eight towns last week included 22 which were referred to different forms of violence, of which eight occurred in Glasgow, five in Edinburgh, three in Dundee, and two in Greenock. The causes of 24, or 5·1 per cent., of the deaths in the eight towns last week were not stated or not certified; in the 76 English towns the proportion of uncertified causes of death last week did not exceed 0·7 per cent.

HEALTH OF DUBLIN.

The annual rate of mortality in Dublin, which had been equal to 16·8, 17·3, and 19·5 per 1000 in the three preceding weeks, declined again to 17·5 in the week ending Oct. 2nd. During the 13 weeks of the past quarter the death-rate in the city averaged 17·2 per 1000, whereas the mean rate during the same period did not exceed 11·4 in London and 12·3 in Edinburgh. The 134 deaths of Dublin residents during last week showed a decline of 15 from the number returned in the previous week, and included nine which were referred to the principal epidemic diseases, against numbers declining steadily from 37 to 10 in the five preceding weeks. These nine deaths were equal to an annual rate of 1·2 per 1000, the rate from the same diseases last week being 1·3 in London and 2·2 in Edinburgh. Of these nine deaths from the principal epidemic diseases in Dublin last week, five resulted from diarrhœa, two from "fever," and two from whooping-cough, but not one from measles, scarlet fever, diphtheria, or small-pox. The fatal cases of diarrhœa in Dublin have steadily declined in the last six weeks from 30 to five. Of the 134 deaths at all ages in the city last week 20 were of infants under one year of age and 44 of persons aged upwards of 60 years; the deaths of infants showed a marked decline from the recent weekly numbers. Four inquest cases and four deaths from violence were registered during the week, and 56, or 41·8 per cent., of the deaths occurred in public institutions. The causes of three, or 2·7 per cent., of the deaths in Dublin last week were not certified either by a registered medical practitioner or by a coroner; in London the causes of all but one of the 1079 deaths were duly certified, while in Edinburgh the proportion of uncertified causes was equal to 9·2 per cent.

THE SERVICES.

ROYAL NAVY MEDICAL SERVICE.

IN accordance with the provisions of Her late Majesty's Order in Council of April 1st, 1881, Fleet-Surgeon Charles Geekie Matthew has been placed on the Retired List at his own request (dated Sept. 30th, 1909).

The following appointments are notified:—Surgeon: W. Bradbury to the *Vulcan*, additional, lent temporarily. Civil Practitioner: T. Derrick to be Surgeon and Agent at Dysart.

ARMY MEDICAL SERVICE.

Lieutenant-Colonel Edward Butt, from the Royal Army Medical Corps, to be Colonel, vice J. G. Harwood, retired (dated Sept. 15th, 1909).

ROYAL ARMY MEDICAL CORPS.

Major G. Dansey-Browning has been appointed to the Aldershot Command as Assistant Sanitary Officer. Lieutenant C. Cassidy has been selected for employment with the Egyptian Army. Major H. O. B. Browne-Mason and Captain H. Simson have been appointed to India. Captain Francis Spring Walker has been appointed medical officer in command of effective troops at Crownhill (Plymouth). Captain Arthur Henry MacNeill Mitchell has been appointed medical officer in command of effective troops at Plymouth.

INDIAN MEDICAL SERVICE.

The King has approved of the following promotions in the Indian Medical Service:—To be Surgeon-General (dated Jan. 11th, 1909): Lieutenant-Colonel Henry Wickham Stevenson. Majors to be Lieutenant-Colonels (dated Sept. 29th, 1908): Herbert Edward Drake-Brockman, William Byam Lane, Philip James Lumsden, and Samuel Esmond Prall. Captain to be Major (dated July 28th, 1909): John George Patrick Murray. Lieutenant to be

Captain (dated Feb. 1st, 1909): William Anderson Mearns. To be Lieutenants (dated Jan. 30th, 1909): Henry Charles Gustavus Semon, Andrew Monro Jukes, Gwilym Gregory James, William David Keyworth, Berkeley Gale, John Howard Horne, Harold Holmes King, Richard Edward Flowerdew, Mozaffer Din Ahmed Kureishi, John Glendinning Bryden Shand, and Alfred John Lee.

The King has also approved of the transfer to the temporary Half-pay List of the following officers: Captain Richard Francis Chetwynd Talbot (dated July 24th, 1909).

His Majesty has also approved of the following retirements:—Lieutenant-Colonel Terence Humphreys Sweeny (dated March 1st, 1909), Lieutenant-Colonel Francis Frederick Perry, C.I.E. (dated June 14th, 1909), Lieutenant-Colonel Stephen Little (dated June 22nd, 1909), Lieutenant-Colonel Richard John Baker (dated August 12th, 1909).

TERRITORIAL FORCE.

Yeomanry.

King's Colonials: Surgeon-Lieutenant William S. Henderson to be Surgeon-Captain (dated April 1st, 1908).

Royal Army Medical Corps.

1st Welsh Field Ambulance: Lieutenant Thomas Smyth resigns his commission (dated Sept. 3rd, 1909).

3rd Wessex Field Ambulance: Captain Herbert J. Godwin resigns his commission (dated August 25th, 1909).

1st Western General Hospital: Llewellyn Arthur Morgan to be Captain, whose services will be available on mobilisation (dated Sept. 22nd, 1909).

Attached to Units other than Medical Units.—Lieutenant Alan Ayre-Smith to be Captain (dated May 22nd, 1909). Captain Edmund P. I. Coke resigns his commission (dated Sept. 13th, 1909).

For Attachment to Units other than Medical Units.—John Orton Hollick to be Lieutenant (dated August 12th, 1909).

DEATHS IN THE SERVICES.

Brigade-Surgeon William Pearson Ward (late Royal Artillery), recently at Hove, in his 86th year. He joined the medical staff of the army in 1847 as assistant surgeon, became surgeon in 1855, surgeon-major in 1867, and retired in 1880. He served through the Crimean campaign of 1854–55, and was present at the affair of McKenzie's Farm, the battles of Alma, Balaclava, Inkermann, and the siege of Sebastopol, including the assault on the Redan. He was also present at the bombardment and surrender of Kinburn (medal with four clasps, a Knight of the Legion of Honour, and Turkish medal).

TUBERCULOSIS IN THE NAVY.

Replying to Mr. Summerbell in the House of Commens on Oct. 5th, Mr. McKenna said that the number of officers and men finally invalided from the service (including Marines) for tuberculosis for the years 1899 to 1908 was 2673, made up as follows: 1899, 207; 1900, 165; 1901, 232; 1902, 288; 1903, 334; 1904, 353; 1905, 331; 1906, 214; 1907, 266; 1908, 283. No special provision was made for their treatment on their discharge from a home or hospital. In reply to a further question, the First Lord of the Admiralty said that all men before being accepted for service were medically examined. When they were discharged suffering from tuberculosis no notification was sent to the medical officer of any particular town.

A DIRECTORY OF THE PUBLIC HEALTH SERVICE.—Acting on suggestions from many quarters, the Editor of the *Medical Officer* will publish early in the new year a directory of the whole Public Health Service in England, Scotland, and Wales. The directory will be on entirely new lines, and will include full particulars of the whole staff of sanitary authorities and school inspection officials. If any medical officer has not received a form for filling up he is requested to communicate with the Editor at 36, Whitefriars-street, E.C. It is hoped that the forms will be returned at once, as otherwise the labour of compiling the directory will be greatly increased. We have received a special number of the *Medical Officer* containing the bound and indexed records of the Health Congress held in Leeds in July as they appeared daily during that Congress, of which the *Medical Officer* was the official journal. Copies can be obtained for 2*s.* post free from the above address.

Correspondence.

"Audi alteram partem."

THE TREATMENT OF SYPHILIS BY INTRAMUSCULAR INJECTIONS OF INSOLUBLE PREPARATIONS OF MERCURY.

To the Editor of THE LANCET.

SIR,—With reference to Major H. C. French's paper in THE LANCET of Sept. 25th, pp. 920 *et seq.*, entitled "The Treatment of Syphilis by Intramuscular Injection of Insoluble Salts of Mercury as Contrasted with the Inunction Method," and which purports to be a critical rejoinder to a paper of mine read last June before the American Medical Association at Atlantic City,[1] I would point out, in the first place, that the use of the term insoluble *salts* of mercury is not applicable to grey oil, the mercury in that preparation being in a metallic state.

I will now reply to Major French's criticisms and contradictions. As to my statement that *many* British dermatologists gave evidence before the Army Commission of Inquiry adverse to the use of mercurial cream, although apparently they had no actual experience of the method, it is correct, and I maintain it.

Major French says that I omitted the deaths on record in the British army in the report of the above Commission of Inquiry. I did omit them, although they bear out my contention and would have lent further support to my argument, and for a very good reason. I did not consider it necessary to refer to our army in the matter, and I limited myself to oft-quoted fatal cases that had occurred abroad. As Major French has thought fit to publish the British army cases in the columns of THE LANCET, cases which, I should like to add, date from 1900–01, when the method was not perfected and men were feeling their way, I am bound to examine them. With regard to those cases reported by Surgeon-General Fawcett, R.A.M.C., it would certainly be interesting to have details as to the condition of the patients, previous illnesses, and also the state of the mouth and teeth, urine, &c., before and during the treatment by means of injections of mercurial cream. I take this opportunity of saying that I have never myself used the mercurial cream as employed in the British army, but French preparations of *huile grise* only.

Major French says he "never gives more than six weekly injections of 10 minims each of the standardised mercurial cream (Lambkin's formula)." He adds: "This contains one grain of metallic mercury in each dose. I allow an interval of from two to three months, then another course as above, and so on for two years."

Before taking Surgeon-General Fawcett's four first cases seriatim I would point out *in limine* that doses of two grains of metallic mercury were injected each time, double the dose mentioned by Major French. This is definitely stated for Cases 1, 2, and 4 in the details published in THE LANCET by Major French himself, which I have before me. As to Case 3, the dose is not definitely stated, but I think I may assume, going by the dates, that the same preparation was used for this patient also.

Now as to the cases. Case 1: The patient had, it is stated, 36 grains in a period of 30 weeks—viz., 18 injections of two grains of mercury each. In Case 2 the patient received 32 grains of metallic mercury in injection (16 injections in all of two grains Hg each) from Dec. 18th, 1900, to May 1st, 1901—that is to say, 18 weeks. As to Case 3, the patient had 19 injections of standardised grey oil, but the doses given are not mentioned. I think I am justified, however, in assuming, and Major French will correct me if I am mistaken, that the amount of mercury was $17 \times 2 = 34$ grains over a period of 32 weeks (June 6th, 1900, to Feb. 7th, 1901), followed on March 13th and 27th by two more, making a total of 38 grains. This case was not fatal, but the patient was very ill. Case 4: This patient received nine injections of ♏x. (gr. 2 of Hg) = 18 grains from January 19th to

[1] The Intramuscular Treatment of Syphilis, with Special Reference to the Insoluble Preparations of Mercury: a Critical Review, THE LANCET, July 24th, 1909, pp. 212 et seq.

April 10th, 1901, that is, say, 12 weeks. This patient recovered.

Summarising these four cases, two of which terminated fatally, the patients received weekly quantities of mercury which work out as follows:—Case 1: 36 grains over a period of 30 weeks = 1½ grains a week for 30 weeks. Case 2: 32 grains over a period of 18 weeks = 1⅞ grains a week for 18 weeks. Case 3: 34 grains over a period of 32 weeks = 1 1/16 grains a week for 32 weeks. Case 4: 18 grains over a period of, say, 12 weeks = 1½ grains a week for 12 weeks.

Let us compare these figures with those based on Major French's six weekly injections of one grain each followed by from two to three months rest. Here we have, allowing two months rest, six grains of Hg over a period of 14 weeks = ⅜ grain a week; or allowing three months rest, six grains of Hg over a period of 18 weeks = ⅓ grain a week. Comparing the latter with the period of 18 weeks of Case 2, during which the patient received 32 grains in all, or 1⅞ grains a week, nearly two grains, the discrepancy is great.

Taking two of the periods recommended by Major French, we have, with two months rest, 12 grains of Hg given over a period of 28 weeks = ⅜ grain a week; and allowing three months rest we have 12 grains of Hg over a period of 36 weeks = ⅓ grain a week. Compare this with Case 1, in which the patient received 36 grains in 30 weeks, or 1½ grains a week; or with Case 3, in which 34 grains were injected over a period of 32 weeks, or 1 1/16 grains a week; or, again, with Case 4, in which 18 grains were given in 12 weeks, or 1½ grains a week. If it be objected that the periods should be reckoned from the first injection to the twelfth, and that is making a concession of time to Major French, we have with two months rest 12 grains of Hg distributed over a period of 20 weeks = ⅝ grain a week; or, with three months interval, 12 grains over a period of 24 weeks = ½ grain a week.

On Major French's own showing the amount injected should be somewhere about half a grain a week. It is a pity that Major French in his obvious desire to crush me with his critical rejoinder did not examine these four cases a little more critically before quoting them. I repeat I did not include them in my American paper, although these cases would have supported my contention that in fatal cases and in bad cases of stomatitis the doses of mercury had been too large. Indeed, when I was preparing my paper I decided to leave out all references to cases occurring in British army practice, and I limited myself to the examination of cases recorded in civil practice, so that Major French's contradiction of my statement that intramuscular injections of insoluble mercurial preparations are not employed to any extent in England and the United States does not amount to anything. Incidentally in my paper I did refer to the fact that the method was used in the British army, thanks to the efforts of Colonel Lambkin, whose pioneer work deserves every recognition. Perhaps Major French overlooked this when he read my paper, but I think that before contradicting me so categorically he might have done me the honour of making sure of his ground.

I do not mind meeting Major French half way by examining the four cases reported by Surgeon-General Fawcett and which occurred in Egypt, but I refuse to follow him to India and to go east of Suez. Syphilis among soldiers in India needs to be taken very much on its merits. East is East and West is West,

> "And the wildest dreams of Kew are the facts of Khatmandhu,
> And the crimes of Clapham chaste in Martaban."

Major French misquotes me when he says that I state: "I have only employed the intramuscular injections in my private practice. No ill-effects ensue after 10–12 consecutive weekly injections of doses varying from 1-10 centigrammes." What I really did say is this: "As far as my own work goes, I may say I have only employed the intramuscular injections of insoluble preparations in my private practice. I have never seen any complications arise. My results have been very satisfactory and I consider the method a most valuable one, especially when any serious syphilitic complication threatens. My experience of the *early abortive intense* (italics are in my paper) treatment has been from the nature of private practice very limited, and I have not felt justified in applying it to its full extent. But where full control of the patient could be obtained I have found no ill-effects ensue after 10 or 12 consecutive weekly injections of doses varying from 7 to 10 centigrammes." I would insist here that my reference to the use of 10 to 12 injections relates to the so-called *early intense abortive* treatment of syphilis, and not to ordinary treatment. Major French's mangled quotation of my printed words is a misrepresentation of my views and practice. To take two sentences totally unrelated to each other and quote them in direct consecutive order—that is, without any indication that there were other sentences between them—is an unwarrantable procedure. The matter is made worse by the remarks of Major French which immediately follow his misquotation of what I said and wrote. I insist on this, as such a way of putting it must necessarily create prejudice.

As to other points, I may tell Major French that in his references to severe mercurial dermatitis he is sending coals to Newcastle as far as I am concerned.

His remarks as to Professor Fournier's attitude in the matter of insoluble preparations are not up to date. I know Professor Fournier and his son, Dr. Edmond Fournier, personally. They both employ *huile grise* in intramuscular injection. Indeed, it is not so long ago that a patient was directed to me with a request from Professor Fournier himself that I should continue injections of *huile grise* in the case. I have habitually used Dr. Edmond Fournier's syringe specially devised for *huile grise*, to which I alluded in my paper.

With regard to the two fatal cases following inunction treatment, one of which I took from the practice of Dr. Mayer of Aix-la-Chapelle,[2] the fact remains that the inunctions led to a fatal issue. These are not the only two cases that might be brought forward against the inunction treatment, but I was careful to add in my paper that "that would surely be no reason for damning a method that is valuable."

In my American paper I dealt fairly and squarely with the whole matter, as far as the limits of time would allow me. I stated distinctly that in the treatment of syphilis I was eclectic as to the method to be employed; all methods had their place. Moreover, I insisted on the importance of *not* treating cases by intramuscular injections of insoluble preparations in a routine way, adding that in certain circumstances which I enumerated, insoluble preparations were absolutely contra-indicated. I did not advocate their use for all and sundry, but put in a plea for a better recognition of a valuable addition to our armamentarium in fighting syphilis. I looked at all sides of the question and did my best. I may say that at Atlantic City, although many among my audience were not favourably inclined to insoluble preparations of mercury, they quite appreciated the fact that I had dealt with the method frankly and fairly, and that I had pointed out its dangers as well as its advantages.

I am, Sir, yours faithfully,

Harley-street, W., Sept. 27th, 1909. GEORGE PERNET, M.D.

IS SNOW-WATER UNWHOLESOME?

To the Editor of THE LANCET.

SIR,—If I may add a few words to the discussion upon the influence of snow-water that has been taking place in your columns recently I should like to draw attention to some interesting though almost forgotten observations made amongst the Cree Indians in North-West Canada in the year 1819–20, by John Richardson, M.D., F.R.S., F.L.S., who accompanied Captain John Franklin, R.N., F.R.S., upon the first and second of his voyages to the shores of the Polar seas in search of the North-West passage.

Dr. Richardson's observations in his own words are as follows: "Bronchocele, or goitre, is a common disorder at Edmonton. I examined several of the individuals afflicted with it, and endeavoured to obtain every information on the subject from the most authentic sources. The following facts may be depended upon. The disorder attacks those only who drink the water of the river. It is indeed in its worst state confined almost entirely to the half-bred women and children, who reside constantly at the fort, and make use of river water, drawn in the winter through a hole cut in the ice. The men, being often from home on journeys through the plain, when their drink is melted snow, are less affected; and, if any of them exhibit during the winter some incipient symptoms of the complaint the annual summer voyage to the sea-coast generally effects a cure. The natives who confine themselves to snow water in the

[2] Ueber die Prognose der Syphilis, 1904, p. 12.

winter, and drink of the small rivulets which flow through the plains in the summer, are exempt from the attacks of this disease. These facts are curious, inasmuch as they militate against the generally received opinion that the disease is caused by drinking snow-water—an opinion which seems to have originated from bronchocele being endemial to subalpine districts. The Saskatchawan, at Edmonton, is clear in the winter, and also in the summer, except during the May and July floods. The distance from the Rocky Mountains (which I suppose to be of primitive formation) is upwards of one hundred and thirty miles. The neighbouring plains are alluvial, the soil is calcareous and contains numerous travelled fragments of limestone. At a considerable distance below Edmonton, the river, continuing its course through the plains, becomes turbid, and acquires a white colour. In this state it is drunk by the inmates of Carlton House, where the disease is known only by name. It is said that the inhabitants of Rocky Mountain House, sixty miles nearer the source of the river, are more severely affected than those at Edmonton. The same disease occurs near the source of the Elk and Peace Rivers; but, in those parts of the country which are distant from the Rocky Mountain Chain, it is unknown, although melted snow forms the only drink of the natives for nine months of the year. A residence of a single year at Edmonton is sufficient to render a family bronchocelous. Many of the goitres acquire great size. Burnt sponge has been tried and found to remove the disease, but an exposure to the same cause immediately reproduces it. A great proportion of the children of women who have goitres are born idiots, with large heads, and the other distinguishing marks of cretins. I could not learn whether it was necessary that both parents should have goitres, to produce cretin children; indeed, the want of chastity in the half-bred women would be a bar to the deduction of any inference on this head."

I am, Sir, yours faithfully,

Wimpole-street, W., Oct. 5th, 1909. HERBERT FRENCH.

DOMICILIARY MEDICAL TREATMENT UNDER THE POOR-LAW.

To the Editor of THE LANCET.

SIR,—With your permission I should like to say a few words about the "two most cogent reasons" that Dr. H. Beckett-Overy refers to in his letter published in your issue of Oct. 2nd, p. 1026, which he objects to being defined as "mere negations." The first reason I specifically dealt with, and pointed out the impossibility of recovering charges by any legal process from "poor persons," where the first requisite under any enactment would be to prove ability to pay. I instanced the failure in the past to recover anything beyond the most trivial proportion of the relief granted "on loan" under the present system, the principle of which is indistinguishable from that recommended by both the Majority and Minority Commissioners. The restatement of these recommendations without any reference to my criticism Dr. Beckett-Overy does not consider a "mere negation." In his last letter he states that £300,000 have been recovered in various ways by all the authorities having any connexion with the Poor-law. That this is an attempt to meet my criticism I am quite ready to admit, but I demur to its cogency. For aught I know, the £300,000 recovered may be as trifling a proportion of the amount expended as the "relief on loan" recoveries. The inclusion of lunacy institutions nullifies any value it might have as a comparison, as it is notorious that the great bulk of the middle classes of the country make use of these instead of private institutions, with the full knowledge that they must pay for their relatives. From many of these no doubt the cost could be readily recovered. With regard to the second reason—viz., the effect that inability to choose their doctor would have in preventing abuse of gratuitous medical attendance—nothing was said in Dr. Beckett-Overy's first letter, unless it is to be inferred from the general approval of the views of the Minority Commissioners. I admit I called it a mere negation, and do not see why I should alter my opinion. The suggestion now made that this would be a sufficient check is, in my opinion, a very weak argument. No doubt, among the large class of poor persons to whom I refer, most would prefer to choose their doctor, but I have no hesitation in saying from the experience of a lifetime among that class that the choice would be largely swayed by the cost to themselves. Where State-guaranteed medical attendance could be had for nothing it would show very unusual belief in a particular doctor for the patient to prefer the latter if he had to pay him. It is a fact only too cognisant to practitioners among the poor that a difference of sixpence in the fee will detach a patient from a doctor who has attended him for years and send him to an unknown new-comer.

I am, Sir, yours faithfully,

London, Oct. 2nd, 1909. MAJOR GREENWOOD.

DISPENSERS IN PUBLIC INSTITUTIONS FOR THE SICK.

To the Editor of THE LANCET.

SIR,—I am instructed to forward you a copy of a letter dealing with the question of dispensing in public institutions which has been drawn up by the National Union of Assistant Pharmacists and which is to be sent to those concerned as occasion arises.—I am, Sir, yours faithfully,

EDW. S. FRANCIS, M.P.S.,

§ Birmingham, Sept. 29th, 1909. Honorary General Secretary.

[COPY.]

The National Union of Assistant Pharmacists has considered the question of dispensing in public institutions and has decided that it is in the public interest that the attention of public bodies and others having the appointing of a dispenser should be drawn to the following facts and for which we respectfully ask your consideration:—

(1) The Pharmacy Act restricts the open sale of poisons to duly qualified "chemists and druggists" who have been trained and examined by the Pharmaceutical Society, so that they are fully informed as to the nature and properties of poisons. We submit that it is a necessity for the public safety that poisons which are dispensed in large quantities in public institutions should be under the control of a fully qualified individual, and we therefore ask you to appoint a registered "chemist and druggist" (i.e., a pharmacist) as dispenser.

(2) The remuneration offered for the services of a dispenser is frequently such as to admit only of securing persons holding certificates other than the diploma of the Pharmaceutical Society (the recognised standard of efficiency), and as the training for the diploma is long and expensive, we consider £130 per annum to be the minimum salary, irrespective of sex, for the professional and responsible services of a dispenser.

We ask your support in securing to us these rightful conditions in recognition of the fact that it is necessary for us to undergo special training in the interests of the safety and service of the community.

Signed on behalf of the National Union of Assistant Pharmacists.

THE BENHAM TOP.

To the Editor of THE LANCET.

SIR,—In Dr. F. W. Edridge-Green's valuable paper on the Theory of Vision, published in THE LANCET of Oct. 2nd, brief reference is made to the Benham top, and an explanation is offered to the effect that the lines appear red because this is the contrast colour to the green which is seen as the after-image of the black half of the disc. Assuming that black does give an after-image of green to normal sight in a bright light, Dr. Edridge-Green seems to overlook the fact that the lines being themselves black should have an after-image of green. In a paper by Mr. F. Peake Sexton published in the *Illuminating Engineer* last May what has seemed to me a complete explanation of the colour effects in the Benham top has been offered. His theory is based on the fact that the duration of the impression of light on the retina varies for different wave lengths, and he shows how this circumstance completely accounts for all the colour effects of the top and their reversal on reversing the direction of rotation. It is a question of the rate both of growth and decay of colour sensation.

I am, Sir, yours faithfully,

Colchester, Oct. 1st, 1909. CHARLES E. BENHAM.

CHRISTIAN SCIENCE IN RELATION TO THE WORKMEN'S COMPENSATION ACT.

To the Editor of THE LANCET.

SIR,—What is the doctor's duty in the following case? A very intelligent artisan, whom I had been treating some two years ago for syphilis, came to me recently complaining of giddiness, reeling, and other cerebral symptoms which I concluded were caused by a syphilitic tumour. Having plainly expressed my opinion, I told him that it was probable he would be cured if he continued treatment long enough. "I came to you," quoth he, "for diagnosis, not for treatment.

I have joined the Christian Scientists and cannot take any of your medicines. I believe I shall be cured by prayer treatment." In reply, I stated that as his work involved going up and down ladders constantly there would be grave danger that the tumour would result, if untreated, in his falling off the ladder, with perhaps fatal results. I hinted that although he might have made up his mind to chance his own life, still it would not be fair to have his employer mulcted for a fatal accident which was the result of his own obstinacy. Hence I suggested it was his duty to inform his employer of the fact that he had a cerebral tumour and declined treatment.

The man candidly confessed that the employer, although insured, would certainly dismiss him if he know the truth, but he refused treatment. Does any duty lie on the practitioner to inform the employer, either to save the man's life or the employer's pocket? In my opinion the duty of the doctor is only to the patient, but I should like to hear other opinions on the case.—I am, Sir, yours faithfully,

J. C. MCWALTER, M.D. Brux., F.F.P. Glasg.

Dublin, Oct. 3rd, 1909.

DEATH CERTIFICATION AND CORONERS.

To the Editor of THE LANCET.

SIR,—Referring to the case of the coroner and Dr. F. C. Coley, published in THE LANCET of July 24th, p. 243, I should like to give you particulars of a similar case which came under my notice in which the coroner told me *to give a certificate*. An electrician to a pit was attending to my electric bells one evening, when he asked me to examine his chest on account of a pain from which he was suffering. I diagnosed heart disease and told him that he should rest for three months. I had never seen the man before and did not see him alive again. One morning some months afterwards I was called up to the pit where he worked to see a man who had died suddenly. The deceased turned out to be the electrician. I happened to mention the fact that I had advised him to rest, and so on, which information was retailed to the coroner's officer when he reached the pit, and in due course came to the ears of the coroner, who telephoned me asking me to give the certificate, though a period of some months had elapsed since I had seen him the one and only time.

Only recently I gave a certificate of death "due to ptomaine poisoning," at the same time out of courtesy telephoning the coroner that I had done so, and that the primary cause was probably ice-cream. I was much surprised to hear from him that I ought not to have given a certificate, though the patient had been visited three times in 24 hours by my colleague and myself, thus establishing attendance during last illness, and on asking if I should do a post-mortem examination was told that if I were able to give a certificate I could surely satisfy the jury as to the cause of death without a post-mortem. I hold that there should not have been any inquest, or, if one was deemed necessary, a post-mortem examination should also have been made.

I am, Sir, yours faithfully,

W. H. H.

THE BOOTS OF THE TERRITORIAL ARMY.

To the Editor of THE LANCET.

SIR,—Your correspondent, in his interesting article on the Territorial Medical Service in THE LANCET of Sept. 25th, draws attention to some of the disabilities which cause bad marching amongst the troops. Whilst endorsing all he says as to the importance of keeping the feet clean, I think the necessity for adequate covering for them requires an equal amount of consideration. As the result of a "foot inspection parade," and from cases which reported sick, I found a great number of the men suffered after the first day or two of marching during the late camp on Salisbury Plain from "blisters on the soles of the feet," abrasions, and cracks about the heels and over the dorsum of the foot, due chiefly to the unsatisfactory boots worn by most of the troops. I found these lesions frequently present even amongst those of the men who were particular in keeping the feet clean.

It appears that no boots are issued to the Territorial soldier on enlistment, and the 2*s*. 6*d*. boot money allowed to each man is of little use to him in obtaining a good pair. The result is that in many of the regiments a great variety of "foot-wear" is in use, and a lot of the boots fit badly and are evidently of a poor quality. Since my return from camp I have been shown by a practical bootmaker a cheap and very commonly used form of brown boot, cut down the centre from top to toe. Under a thin leather sole there is a pad consisting apparently of brown paper; this readily, on wet roads and from the heavy dew on the grass noticed at each early morning parade, gets soaked through and remains sodden. As the men have no means of drying their boots they are obliged to wear them in this condition, resulting, I feel sure, in chills and an unhealthy state of the skin of the soles of the feet, causing them easily to blister and crack. The plucky way a great many of the men continued to march with their feet in the painful condition I frequently noticed is another proof of the general keenness mentioned in most of the daily papers. I am told that it is possible to supply an excellent brown boot made of good leather, and treated by a new process, whereby it is rendered absolutely and permanently waterproof; my bootmaker informs me this process is known as the "Forbec." Boots made of this leather can be obtained for 10*s*. per pair. The objection, I suppose, to issuing boots to the men is that they might use them for other purposes than service use, but surely this could be got over, as I believe it is in the regular army, by making a man either produce the boots issued (in the case of a Territorial before he goes to camp) or getting himself a similar pair and deducting the cost from his pay if necessary.

I am, Sir, yours faithfully,

Oct. 2nd, 1909. LIEUTENANT, R.A.M.C.T.

BRISTOL AND THE WESTERN COUNTIES.

(FROM OUR OWN CORRESPONDENTS.)

The University: Reception of Students.

THE University session opened on Sept. 30th with Sir Isambard Owen's address, and on the evening of Oct. 2nd a reception was held at the University for students and staff. Mr. Lewis Fry, on whose behalf the invitations were issued, was unwell and could not be present; but the guests were received by Lady Owen, Professor and Mrs. Lloyd Morgan, and Professor and Mrs. Michell Clarke. Music was provided by the University Musical Society, under the direction of Mr. Cedric Bucknall, the University lecturer in music. All round the hall in which the reception was held were ranged tables at which various student societies, over 20 in number, were represented. These will, it is hoped, be united into a guild of undergraduates, which was provided for under the charter. In the centre of the room was a stand exhibiting various objects of interest brought home by Lieutenant Shackleton's Antarctic Expedition. These were kindly provided and supervised by Mr. R. E. Priestley, who was geologist to the expedition, and whose brother is lecturer on botany to the University. There was a very large number of students present, and the staff was well represented also.

Hostel for Bristol University.

Clifton Hill House, formerly the residence of Dr. Symonds, has been purchased as a hostel for Bristol University. Two ladies have subscribed £2000 towards the cost of the undertaking.

The Gloucestershire Royal Infirmary.

At the quarterly general meeting of the governors of the Gloucestershire Royal Infirmary held on Sept. 30th the chairman (Colonel Curtis Hayward) stated that the expenditure of the institution last year exceeded the income by £1000. He added that the committee had decided, unless it had increased financial support, that it would reduce expenses by closing a ward and reducing the number of nurses. Colonel Hayward added that this would be a calamity for the city and county, but he was afraid the present generation did not quite appreciate its duty towards the infirmary, the work and cost of which were ever increasing.

The Declining Birth-rate.

A member of the Bristol education and health committees has drawn attention to the declining birth-rate at Bristol.

The matter was alluded to at a recent meeting of the health committee, when it was stated that in 1884 the birth-rate was 32·6, a year ago it was 24·2, and now it is as low as 23.

Medical Inspection of School Children.

At a meeting of the Tavistock (Devon) school attendance sub-committee held recently it was reported that some parents had objected to their children being examined in an elementary school by the county medical officer of health. It was stated that the law allowed the parents to act in this manner, and the sub-committee, after some discussion, decided to recommend the county authority to take steps, if possible, to get the law amended so as to prevent parents being able to withdraw their children from medical inspection.

The Devon County Council and the Prevention of Consumption.

The Devon County Council at its last meeting decided to purchase and circulate pamphlets of the National Association for the Prevention of Consumption. The council further determined that the education committee be requested to consider the question of providing instruction as to the means which should be adopted to secure protection against tuberculosis, and the council also suggests that the scheme of instruction should include the giving of demonstrations and the holding of exhibitions.

Bristol Royal Infirmary.

Mr. Francis Tagart has promised £1000 towards the extinction of the adverse balance remaining over from the infirmary accounts of the last financial year.

Oct. 4th.

MANCHESTER.

(FROM OUR OWN CORRESPONDENT.)

The Work of the Corporation Sanitary Committee.

THE general work of the sanitary committee has been very considerable. It has during the year dealt with, in one way or another, 14,272 houses, warehouses, and other buildings, 1582 lodging-houses, 3176 dairies and milkshops, 4644 infectious cases, drainage, the sanitary accommodation of beerhouses, 3257 houses under the Factory Acts, 510 bakehouses, fire-escape provision in factories and workshops, the hours of work in shops, the provision of seats for assistants, and many other things. During the year 2335 insanitary dwellings were certified to the committee. Of these 2164 were ordered to be closed, while the decision on 171 was adjourned, but as the owners of 1695 agreed to make the required alterations 469 summonses only were actually served. The corporation has a municipal lodging-house, which has been well attended during the year, the number accommodated averaging over 343 per night. The cubicles number 353, a small margin, and it has been decided to extend the accommodation by the addition of 123 more cubicles. As regards the adulteration of food, it is not satisfactory to find a slight increase from 3·42 per cent. last year to 3·74 this year. This is accounted for chiefly by the increased number of samples of adulterated coffee and spirits. Presumably the increased tax on spirits has stimulated fraudulent ingenuity. As regards butter adulteration, it is so profitable to the dealer that it will be difficult to prevent it till the justices see fit to deal more severely with the cases brought before them. It is a sordid, mean thing to adulterate food, and those who suffer from it are the poorer classes who ought to obtain more protection from it than the law seem willing to give.

Black Smoke.

One of the difficult tasks the sanitary committee of the city council endeavours to accomplish is the diminution of the black pall of smoke usually hanging over Manchester, and it cannot be said that so far its efforts have been crowned with success. In the year ending in April last 178 cases were reported where black smoke had poured forth from chimneys for two minutes or more in the half-hour. Of these, 131 were referred to the magistrates to be dealt with, and in the other cases the offenders were cautioned. There have been great complaints of the evil-smelling black smoke given out by railway and road locomotives, and in several instances prosecutions have been necessary. The penalties usually imposed are too trifling to check, much less to suppress, this nuisance; or to put it more euphemistically in the words of the report, the penalties "are not such as to assist the committee in the suppression of smoke nuisances." These small penalties will not, perhaps, seem so remarkable when it is remembered that most of the magistrates have been accustomed to the sight of black smoke issuing from tall chimneys since they were first able to open their eyes and to look upon this filthy emanation as an ideal part of the landscape. It appeals to their commercial instinct, for many of them are interested in mills and their chimneys, and think, moreover, that black smoke is a sign of prosperity, not having been educated up to the fact that this enormous waste of fuel is unnecessary and avoidable. Manchester also suffers from the sins of her neighbours, for she is almost surrounded by a ring of tall chimneys beyond her jurisdiction, sending forth black smoke as if their existence depended on their efficiency in that variety of manufacture. Salford has for years been among these creators of a most hurtful nuisance. The tall mill chimneys are well backed up by the lower ones of various works, hotels, &c., all over the city. Of course, the black smoke and smuts pervading the town cause serious loss to those who deal in or manufacture light delicate fabrics, to say nothing of the depressing effects of constantly dwelling in such an atmosphere, or of its pernicious influence on those who have sensitive throats or chests.

Ladies as Workhouse Medical Officers.

At the meeting of the Prestwich guardians on Sept. 30th a discussion arose as to the suitability of a lady being appointed to the position of assistant workhouse medical officer. This was in consequence of five out of the six answers to the board's advertisement for applications being from ladies. It was eventually decided, however, that the board should advertise again, and that it should be made clear that the appointment could only be held by a man.

Oct. 5th.

SCOTLAND.

(FROM OUR OWN CORRESPONDENTS.)

Appointments at the Western Infirmary, Glasgow.

AT a meeting of the directors of the Western Infirmary, Glasgow, held last week the following appointments were made:—Dr. J. Wyllie Nicol, physician to the wards for diseases of the skin; Dr. J. Goodwin Tomkinson, dispensary physician for diseases of the skin; Mr. A. H. Edwards, dispensary surgeon; and Dr. Roy Young, extra-dispensary surgeon.

An Epidemiological Study of Measles in Glasgow.

In his report on the severe measles epidemic which occurred last year in Glasgow, Dr. A. K. Chalmers, the medical officer of health of the city, affords food for thought to medical men and also to those interested in school board affairs. Seldom if ever before has there been opportunity for watching the rise and fall of a serious epidemic of measles in a large city owing principally to the fact that the disease is not notifiable. For some years past, however, there has been an increasing interchange of information with the school boards, and by this means in the recent epidemic the medical officer of health was informed of the names and addresses of scholars who were absent owing to the occurrence of infectious disease in themselves or other members of the family. Following upon the receipt of this, house-to-house visits were made and many other cases were thus discovered. The desire on the part of parents for disinfection also brought many cases to the notice of the sanitary department, and thus the whole volume of the disease present may be regarded to have been fairly represented in the cases dealt with, and particularly in that portion which occurred at school ages. In past experience the outbreak usually became considerably abated after the New Year holidays, but in last year's outbreak its prevalence in February and March equalled that of November and December, while in January the numbers exceeded that of any other single month. The whole duration of the epidemic was from October until April, and a notable and unusual feature was the numerous districts of

the city over which the prevalence was maintained simultaneously for a considerable time. In reviewing a chart of the death-rate from this disease for the last 50 years Dr. Chalmers points out that since the year 1871 the death-rate for individual years more frequently falls below the mean than in the years preceding the "seventies." In the period between 1855 and 1873 every second year almost shows the deaths from the disease to have been in excess of the mean. There then occurs an interval of ten years between 1873 and 1883, during which the death-rate falls below the mean for the period. But, again, from 1883 to 1897, six years only of the 14 have the death-rate below the mean, after which there follows the interval of low death-rates which was brought to a termination by the cyclical prevalence of 1907–08. According to Dr. Chalmers, if one were disposed to suggest that the general lowering of the measles death-rate in the last 30 years has been the result of active sanitary administration, there comes in the interval between 1883 and 1897 to suggest that other factors are at work, and what seems more likely is that the organism of measles undergoes fluctuation in infective power and that periods of increased prevalence correspond with the development of a high degree of infectivity. At the same time it has to be observed that even after a twelve years' interval the death-rate in 1908 is considerably below the rate which obtained in 1883, which marked the termination of the former interval of similar duration. The attack-rate during the recent outbreak was at least 17 per 100 living at ages of three to five years, compared with 5 per 100 at ages of five to 15 years. Of the 22,033 cases dealt with no fewer than 13,646, or 62 per cent., were at ages under five years. The influence of school association in the spread of measles is beyond dispute, but the contrast between the attack-rate in the first five years of life with that at ages of five to 15 years, which includes the school age, definitely raises the question, according to Dr. Chalmers, whether school closure in any form can be expected to interrupt materially the current of an epidemic, which is attacking the earlier ages at more than three times the rate prevailing among children in the period which includes those who are attending school. This gains support from a comparison of the distribution of the disease before and after the New Year holidays. For the future it is to be hoped that medical inspection under the Education Act will help in the early recognition and exclusion of children who are displaying the first symptoms of invasion of the disease.

Oct. 5th.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

The Quarterly Report of the Dublin Public Health Committee.

THE report of the public health committee of the corporation of Dublin for the second quarter of the present year (ending June 30th) has just been issued. Sir Charles Cameron reported that the necessity of making a fully detailed statement in his statutory certificate regarding the Cook-street insanitary area had been legally indicated to him. Accordingly, he had not only prepared a full statement regarding the conditions of the houses in that area (as he had done in former reports), but he included the houses (Nos. 1 to 13) on the east side of Michael's-lane, as these were all in a very bad state, and any scheme of improvement which allowed them to stand would necessarily be incomplete. A letter from the Women's National Health Association was discussed which expressed its warm approval of the plans for utilising rooms during disinfection and for the isolation of some of the worst cases of disinfection in tenement houses. An interesting section of the report is that which deals with the baths and wash-houses, to which 36,986 persons had paid for admission during the quarter. Of this number, 19,492 were visitors to the swimming-baths, of whom 777 were members of ladies' aquatic classes. The reclining baths were visited by 11,949 persons, of whom 1779 were females, including 331 Hebrew matrons, who used the special plunge bath. The private reclining bath had realised a sum of £227 12*s.* The public wash-house had been utilised by 5285 women during the quarter, who had paid £28 12*s.* 6*d.* for the accommodation. An invitation has been received by the committee from the secretaries of the Fifteenth International Congress of Hygiene and Demography, which is to be held at Washington next year, to appoint representatives to attend its meetings. In response to the invitation, the chairman (Alderman Thomas Kelly) and assistant executive sanitary officer (Mr. Patrick Nally) were selected, subject to the approval of the municipal council.

Glasnevin Cemetery: its Pit Burial of Paupers.

The municipal corporation of Dublin has at length decided to effect a permanent improvement in the conditions of Glasnevin Cemetery, the great central burial-ground of the Irish race. It is but too well known that two of the characteristic features of the Irish metropolis are its large number of paupers and the high rate of its mortality, two factors which are to some extent interdependent. But in this century the practical application of the time-worn maxim that "prevention is better than cure" has become an accomplished fact, for the first time in the history of medicine. And in keeping with the progress of sanitation it is gratifying to record that two of the notices of motion to be brought before the next meeting of the corporation deal with the subject of the burial of the poor. The first of these demands an expert decision (by the superintendent and district medical officers of health) of the question whether the "pit" burial at Glasnevin constitutes a public nuisance, and if so that the necessary steps be taken to stop it. The second is more comprehensive:—

> That the Local Government Board be requested to hold a sworn inquiry to investigate the charges made to the Corporation of Dublin that the system of burial provided for the poorer classes is neither sanitary nor decent, and that pending the result of this inquiry no further steps be taken to found a municipal cemetery.

This motion, which was partially discussed on Monday, Oct. 4th, surely deserves the best attention of the governing body of a community which has long prided itself (not without cause) on its ready sympathy with poverty and pain. It may be added that the co-existence of the colossal monuments of Glasnevin, erected in memory of individuals of more than doubtful benevolence, with its paupers' "pit" can hardly claim to be worthy of either democracy or Christianity.

Dublin Sanitary Association: View of the Action of the Opponents of the Tuberculosis Campaign.

At the meeting of the council of the Dublin Sanitary Association which was held last week the members discussed "the grave danger to the public health" arising from the operations at present in progress at the main drainage works, at Burgh Quay and the vicinity, and it was decided to interrogate the corporation on the subject. The debate on the prevention of tuberculosis, which had taken place at the meeting of the guardians of the South Dublin Union on the previous day, was then discussed with a keen degree of interest. The opinion was unanimously expressed that the views put forward by several of the speakers were "extraordinary, as coming from members of a sanitary authority to which the law had entrusted the safeguarding of the public health and the duty of adopting measures to control the prevalence and spread of dangerous infectious disease, to which category tuberculosis is admitted on all hands to belong." The continuous discussion of the tuberculosis problem is rapidly enlightening the general public on the importance of the questions connected with sanitation in general, as well as of those which are specially associated with the prevention of tuberculous disease.

National Maternity Hospital: Annual Charity Sermon.

The annual charity sermon in aid of the National Maternity Hospital (Holles-street) was preached on Sunday last in the Church of St. Andrew, Westland-row, and was heard by a large and representative audience, the members of which responded liberally to the appeal of the eloquent preacher. There is certainly no institution which has a higher claim on the appreciative sympathy of the public of Dublin and of Ireland. It not only receives patients in its wards, and treats them in its dispensaries, but it sends skilled nurses and medical men to the homes of the destitute poor who are prevented by unavoidable circumstances from presenting themselves at the institution. In this respect it has taken a meritorious leadership which has not up to the present been fully followed by any other of the maternity hospitals of this city. The fact that during the past year 10,432 visits of this kind were paid to the poor of the surrounding district is sufficient evidence of the extent of its sphere of usefulness. The number of patients attended

during the past year, intern and extern included, was 1970, while 4433 gynæcological cases were treated in the dispensary. The hospital now occupies the third place in size and importance among similar institutions in the British Islands.

Health of Belfast.

During the discussion of the report presented to the meeting of the Belfast city corporation on Oct. 1st on the health of the city between August 22nd and Sept. 18th, a very curious state of affairs was disclosed in reference to the importation of a quantity of lard into Belfast from the United States in barrels with, at the ends, the words "inedible" or "non-edible." In some cases it was found that these words had been whitewashed over, and in some cases actually the officer of the public health committee watched a consignment of this stuff from the quay to the stores, and subsequently noticed men engaged in obliterating the warning words from the heads of the barrels and substituting other words. There were 140 or 150 tons of such stuff in Belfast or in course of transit at the time, and the health committee agreed that if the consignees undertook that the material should in no form be manufactured for human consumption it would remove the embargo and permit it to be used for other purposes. The firm affected agreed to this, and they also undertook never again to import or use in their works any lard or grease from the United States unless it bore the official certificate of the Government to the effect that it had been inspected and was not to be used as human food. This "inedible" grease is used in the manufacture of soap and lubricants.

Death of W. J. McDade, M.B. R.U.I.

Great regret has been felt in Belfast at the announcement of the death in Preston of Dr. W. J. McDade, which took place in that town on Sept. 29th, in his forty-seventh year. He began to practise in Preston about six years ago, and became a member of the borough council and vice-chairman of the public health committee. Dr. McDade in his early life in Belfast was engaged in the great firm of Grattan and Co., pharmaceutical chemists, and he left them to take charge of the compounding department of the old Royal Hospital in Frederick-street, where he remained from December, 1884, to July, 1893. At the same time he pursued his medical studies at Queen's College, Belfast, and graduated M.B. of the Royal University of Ireland in 1893. A man of great energy and industry and an excellent after-dinner speaker, Dr. McDade made a great number of friends, and as an experienced practitioner he will be greatly missed in Preston. He leaves a widow. Previous to settling down in practice in Preston Dr. McDade had filled appointments in London, Lincoln, and Manchester.

Oct. 5th.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

Sickness in the Army.

THE average of 269 sick per 1000 of total strength of the army is higher than in previous years. This average represents the proportion of men admitted into the military hospitals, the actual number being 134,631 according to the latest statistics. These 134,631 patients were under treatment for 3,101,126 days. Algeria and Tunis supplied 25,126 hospital patients, giving a proportion of 360 sick per 1000 of the total strength, a number which is higher than in previous years. These patients were under treatment for 648,601 days. In the home army there were 200,686 admissions to the infirmary, giving in that respect a sickness-rate of 478 per 1000 of the total strength. This proportion is decidedly above that of previous years. These patients were under treatment for 1,954,365 days. In Algeria and Tunis the number of admissions to the infirmary was 21,876, or a proportion of 377 men per 1000 of the total strength, which is about the same as in previous years. These patients were under treatment for 258,605 days. According to the military authorities this rapid increase in sickness is due, not so much to the sanitary state of the barracks and the conditions of a soldier's life, as to the fact that men whose health was indifferent at the time of enlistment (*incorporation*) are placed on active duty.

Precautions against Cholera.

On account of the prevalence of cholera in Russia and Holland the President of the Council (Minister of the Interior) has laid down the following regulations with a view to prevent the importation of the disease into France. Every person who comes from a place infected with cholera and on arrival at the French frontier presents possible symptoms of this disease shall be detained at the railway station by the officer (*commissaire*) appointed for the purpose and shall be isolated until seen by a medical man. If the case is then considered not to be one of cholera the person shall be allowed to continue his journey, but if the case is found to be one of cholera the *commissaire*, acting in concert with the municipal authority, shall convey the patient to some place where, in the opinion of the medical man, isolation may be carried out under favourable conditions for the patient and for the prevention of infection. The prefect will also send a representative (*délégué départmental*) or a specially appointed medical man who will take all the steps that may be necessary. Similarly any person coming from a place infected with cholera and presenting suspicious symptoms shall be isolated in a compartment of the train by which he is travelling. All railway servants are bound to act in accordance with this regulation. On the train coming to a station where a *commissaire* resides the patient shall be isolated. The carriages which have been occupied by persons suffering or supposed to be suffering from cholera shall be emptied and disinfected. Dirty linen and soiled clothing or bedding are forbidden to be brought into France by land from infected districts unless as luggage. When lodgings are taken by persons who either come direct from infected places or have left such places within the preceding eight days, the householder shall within 24 hours of their arrival notify the fact to the Maire of the commune. Every case of illness suspected to be cholera shall be immediately notified at the Mairie. Every person suffering from an illness which is either recognised or suspected to be cholera must be immediately isolated, and all measures of prevention carried out with respect both to the patient and to those who have been associated with him.

Oct. 5th.

VIENNA.

(FROM OUR OWN CORRESPONDENT.)

Precautions in the Granting of Medical Diplomas.

THE Vienna Professoren Collegium, which is composed of the teaching staff of the University, has informed the responsible authorities that the existing arrangements are very favourable for those who are willing to obtain a medical diploma by fraudulent means. In particular, the ease with which foreigners are allowed to obtain diplomas is full of danger, as there is no special obligation on these candidates to satisfy the degree-granting body as to the course of instruction which they claim to have had in their own country. This appeal to the authorities is directed principally against medical students from Russia, Roumania, and Servia, who can finish their studies here, obtain a diploma, and settle down here in practice, although they are not allowed by law to do so unless they become naturalised Austrian subjects. In several instances brought to the notice of the Ministry of Education lately diplomas have been obtained merely on production of documents written in a foreign language testifying that the holders had been studying during one or more terms of a medical curriculum, without saying anything about their examinations. The Ministry has accordingly instructed the medical councils to submit a scheme by which such unlawful proceedings may be stopped without inconvenience to ordinary students or to those who attend post-graduate courses of instruction.

Healthy Dwellings for the Poorer Classes.

The erection of healthy dwellings for the poorer classes has been brought into a very satisfactory condition by the exertions of a small body of medical men and philanthropists, and the jubilee of the venerable Emperor Francis Joseph last year prompted many persons to aid the scheme, so that at present there are two "colonies" of this kind in Vienna. One consists of a cluster of cottages with 400

dwellings for 2000 persons, and the other of one large building, capable of accommodating 1000 single men. The leading idea is the obtaining of light and air and comfort for as little money as possible. The minimum air-space for persons has been fixed in these dwellings at 40 cubic metres (about 1200 cubic feet), and a special point has been the absence of backyards with their universal dirt and darkness. Careful observation by the medical officer of health of the district has proved that the health of the inmates of these houses is far better than it was before they came there to live. An important point is that the health of the children has been very satisfactory. This scheme affords a proof on a large scale that money spent in raising the personal comfort of the population saves the outlay which would otherwise be necessary to pay for the hospital treatment of patients belonging to the class in question. Not only have diseases of the respiratory organs been diminished considerably, but also the mortality of children has fallen by 31 per cent., showing the value of fresh air and light in the maintenance of health. Another colony with accommodation for 600 families is now in course of construction, since the results are so very favourable.

Annual Meeting of the Society of German Neurologists.

The German neurologists held their annual meeting in Vienna this year and on the two days (Sept. 17th and 18th) which it occupied a great amount of useful scientific work was accomplished. Professor Erb and Professor Oppenheim were presidents and a large number of eminent neurologists from German-speaking countries were present. Among the papers that were read one on Poliomyelitis attracted unusual attention, as there has been an epidemic of this disease in nearly all parts of Austria within the last two years. The wealth of clinical material at the disposal of the Vienna neurologists and the excellent papers contributed by them were duly appreciated by the guests from abroad, who for their own part had also much to communicate.

Reorganisation of the Chief Board of Health.

The Oberste Sanitätsrath, or chief board of health in this country, has by an ordinance of the Minister of the Interior, or Home Secretary, now received its final constitution and will in future consist of the heads of the medical faculties in Austria, a number of eminent medical and technical and agricultural specialists, and numerous well-known general practitioners. The main intention of the reform is to enable this body to deal in a thorough manner with all questions arising in connexion with public health. As all arrangements pertaining to social hygiene, to dwellings, to the care of children, and to the protection of the working classes have been brought within the scope of this organisation, there has been formed amongst the members a series of special committees which, after coming to an understanding as regards any given question, will offer their opinion to the President of the Sanitätsrath. A very welcome feature of the new body is the large number of general practitioners connected with it; about 25 per cent. of the members belong to this class. For this reason the medical profession will in future be able to make its voice better heard than has hitherto been the case. The office of a member of the Oberste Sanitätsrath is an honorary one. The eligibility of general practitioners for membership is the result of the agitation carried on by the medical organisation for economical progress and has created great satisfaction in all medical circles.

Oct. 1st.

BUDAPEST.

(FROM OUR OWN CORRESPONDENT.)

Music in the Treatment of the Insane.

"BETTER than barrels of medicine and much more effective than straps or strait-jackets." These words of Dr. Podstata are the motto of Dr. Berkes, general superintendent of the asylum for the insane at Gyula, and he recently expressed himself to this effect after observing for two hours the effect of music upon an audience composed of insane male and female patients. The concert given for the inmates of the Gyula asylum was more pretentious than any previous entertainment there. Of the 600 patients under the charge of Dr. Berkes, 200 were assembled in the large hall of the institution and sat there paying more attention than many an audience of persons supposed to be possessed of their full mental faculties. Many of the listeners came from the wards set apart for violent patients; they were constantly under the watchful eyes of the attendants, but none of them gave any cause for anxiety. From the moment of the first number of the programme until the conclusion the audience sat in a state of eager attention and vociferously applauded each selection. Patients who in their wards are continuously restless, muttering, and gesticulating sat quiet and subdued. One patient known to be violent made no more serious demonstration than to rise and move his lips at each outburst of applause. A few of the dull faces did not respond to the charm of the music, but these were rare, and the features of most of the listeners plainly displayed interest and admiration.

Sanitation on the Hungarian Railways.

At the last meeting of the Sanitary Board of the State Railways the executive officer was instructed to draw up certain rules and regulations regarding car sanitation, these to be considered in conference with various railway officials and reported upon at the next regular meeting of the board. In carrying out its inquiry four points are emphasised by the Sanitary Board—namely, (1) a sufficient amount of fresh air properly distributed; (2) cleanliness of the car and its contents, including closets; (3) the proper heating of the car; and (4) overcrowding. The board also inquires whether the above points have received sufficient consideration from the private companies owning railways in Hungary, and the question is asked whether the board shall undertake to secure better sanitary conditions by formulating certain regulations. Circular letters have been sent out to a number of leading medical men, and the character of the replies will influence the board in its decision.

War upon Flies and other Insects.

At a recent meeting of the Nagyvárad Board of Health the following resolutions were adopted:—

Resolved, that the chief inspectors of nuisances, milk, meat, and cattle are hereby directed to visit all retail dealers exposing for sale in front of their premises meat, fish, vegetables, fruit, confectionery, and cake, and to instruct the proprietors that covering of some suitable material must be provided to protect the goods so exposed from flies and insects generally.

Resolved, that the chief medical inspector and the chief inspectors of milk, meat, and cattle be and they are hereby directed to instruct their respective subordinates to inspect regularly all manure pits of all stables, whether private or livery, that exist in their districts, and to give instructions to owners or keepers thereof that stables and manure pits must be kept in a clean condition, and where the pit is on the exterior of the premises it must be kept tightly closed or screened with gauze. If a stable is connected with the premises an inspection and report must be made. All places designated in the resolutions must be visited by the inspectors, and they have to make a thorough inspection of the establishments referred to therein, as well as direct the owners or agents that they will have to comply with the new regulations.

Oct. 4th.

THE HUNTERIAN SOCIETY.—The Hunterian Society's first lecture of the session will be delivered at the London Institution, Finsbury-circus, on Wednesday, Oct. 13th, at 8.30 P.M., by Dr. Sidney Martin, on "Certain Infective Processes in the Intestine, their Results and Treatment." All members of the profession are invited to attend.

LITERARY INTELLIGENCE.—Messrs. Baillière, Tindall, and Cox announce that they have ready for immediate publication a new edition of Jellett's "Manual of Midwifery," which forms one volume of the excellent "University Series" published by the firm. The manual has been for the most part rewritten and many new and original illustrations have been added.—Amongst the works issued by the Hungarian Ministries on the occasion of the recent Sixteenth International Medical Congress is a book on the "Protection of Children" which will be issued in the course of the next month. This will be edited by Zoltán Bosnyák and the Count Leopold Edelsheim-Gyulay; it will consist of four parts, dealing with the Forsaken Child, the Hungarian System of State Protection for Children, the similar work of the Child Protection Society, and the subject of Culprits of Minor Age respectively. The preface has been written by Minister Count Julius Andrássy. Members of the Congress will receive this work with the second part of the Proceedings of the Congress.

Obituary.

SIR THOMAS SMITH, BART., K.C.V.O., F.R.C.S. ENG.,

HONORARY SERJEANT-SURGEON TO H.M. THE KING; CONSULTING SURGEON TO ST. BARTHOLOMEW'S HOSPITAL AND THE HOSPITAL FOR SICK CHILDREN, GREAT ORMOND-STREET, W.C.

"Sir Thomas Smith is dead, and in him we have lost not only a great surgeon, but a king among men. We add up all the honours that he received, and all that he did for the advancement of surgery; and we still find ourselves thinking not of them but of him, the sight of his face, the sound of his voice, the happiness of his presence, the help of his good example. He was like St. Luke, 'the beloved': and there is nobody left in our profession able to take his place." Thus writes one of Sir Thomas Smith's pupils and friends, to whom we owe most of this obituary notice, and the words will strike all those who knew the subject of the memoir as quite apposite.

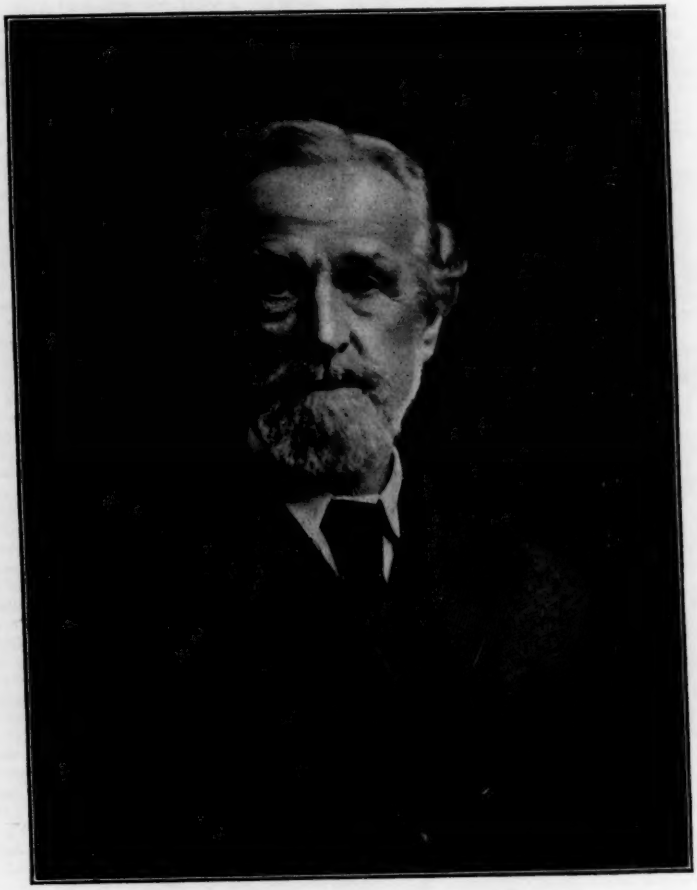
Sir Thomas Smith was born on March 23rd, 1833. His father was Mr. Benjamin Smith, of Great Lodge, Kent. Of his many brothers and sisters, one outlives him, Canon Maberly Smith, Rural Dean of Rochester. He was educated at Tonbridge School. About the time that he left school, his father died. He entered St. Bartholomew's Hospital in 1850; he was apprenticed to Mr. (Sir James) Paget, and was one of the last of the apprentices at the hospital. Other new students, that year, were Sir William Turner, Sir Jonathan Hutchinson, Dr. Hack Tuke, Mr. Bickersteth, and Mr. F. A. Humphry. In 1854, he obtained the Membership, and in 1858 the Fellowship, of the Royal College of Surgeons of England. In 1859, he published his "Manual of Operative Surgery on the Dead Body," illustrated with woodcuts from photographs taken from the body during the operations: it is an admirable book, and was greatly needed, for the examination boards were beginning to require the practice of these operations as a part of medical education. (A second edition of the book, by the help of Mr. Walsham, was published in 1876.)

In 1862 he married a daughter of Mr. Frederick Parbury, of Lancaster-gate. From 1862 to 1868, they lived at 7, Montagu-street, Russell-square. In 1868, they moved house to 5, Stratford-place. It was a venturesome move, for Stratford-place, 40 years ago, was not a "medical street": but, in the later years of his life, Sir Thomas Smith might have said, as Sir James Paget said of Harewood-place, that he had taught the London cabmen to find the street where he lived. For many years, he assisted Sir James Paget in private practice, and was, then and always, like a son to him. In 1879, came the death of his wife. She died after a few days' illness, leaving him with nine children. At St. Bartholomew's Hospital, he was for many years a demonstrator of anatomy and operative surgery: and, on Feb. 24th, 1864, was appointed an assistant surgeon. On July 11th, 1871, he was appointed lecturer on descriptive anatomy, conjointly with Mr. Callender. On Jan. 22nd, 1873, he became surgeon. On July 10th, 1879, he resigned his lectureship in anatomy. On March 10th, 1898, he resigned his surgeoncy: and was appointed to be honorary consulting surgeon, and a governor of the hospital. At the Great Ormond-street Hospital for Sick Children, where he had been a house surgeon in 1854, he was appointed assistant surgeon in September 1861, and surgeon in June 1868. He resigned his surgeoncy in November 1883, and was appointed consulting surgeon. He was consulting surgeon, also, to King Edward VII. Hospital, and to the Alexandra Hospital for Diseases of the Hip. By his death THE LANCET Relief Fund loses its honorary auditor, Sir Thomas Smith having succeeded Sir Henry Pitman in the office. Though discharging the duties for a short time only, he showed keen interest in the work of the Fund, and brought a keen business instinct to bear upon it.

From 1880 to 1900, he was a member of the Council of the Royal College of Surgeons: and was a Vice-President in 1887–8 and 1890–1. In 1900, he was appointed a Trustee of the Hunterian Collection, but he is understood not to have desired to be made President of the College. In 1895, on the death of Sir William Savory, he was appointed Surgeon Extraordinary to H.M. Queen Victoria. He attended many members of the Royal Family, and in 1897 received the honour of a baronetcy. On the King's Accession, he was appointed Surgeon in Ordinary to His Majesty. In 1901, he assisted Sir Frederick Treves in the operation on the King, and was appointed Honorary Serjeant-Surgeon to His Majesty, and Knight Commander of the Victorian Order.

His writings on surgical subjects show clearly his greatness, his originality, and his wonderful mastery of the facts of each case. It is of no use to wish that he had written more: he had no great liking for long formal text-books. "It's the men who don't get the cases," he once said, "who write the books about them." But there is the making of more than one book in some of his short papers. They stand out, in a very remarkable way, in the old volumes of the transactions of this or that society. In 1868, his paper, "On the Cure of Cleft Palate by Operation on Children," was read before the Royal Medical and Chirurgical Society: it makes a landmark in the history of that operation. To assist him over a bad cleft palate, was to get a lesson in surgery not soon to be forgotten. In 1869, his paper was read, before the same society, proposing "Nephrotomy as a Means of Treating Renal Calculus." It illustrates what we mean by the phrase "a born surgeon." He had not performed the operation: he could find no account of it, except that a certain "Dominicus de Marchetti, a physician of Padua," had once done it: still, he believed that the operation might be safely done. "I owe the Society an apology," he says, "for bringing before it a paper on a somewhat novel method of treatment, without, at the same time, detailing some experience of the proceeding the paper discusses. Having, however, waited in vain for more than two years for an opportunity of putting the operation of nephrotomy to the test of experience, I am induced to publish the following short and incomplete communication." He gives the most exact rules for the operation: he discusses carefully every possible danger: he foresees everything. Especially, he says, the operation must not be attempted till it has been done on the body of one who has died with a stone in the kidney. "I hope that this experience may shortly be forthcoming, either by others performing the operation themselves on patients who may have died with renal calculus, or by the kindness of some surgeon giving me an opportunity of operating under similar circumstances." In 1870 he brought before the Clinical Society one of the very first cases of vaccino-syphilis recorded in this country. In 1872, he reported to the same society a case of gastrostomy for cancer of the œsophagus: the seventh case thus treated in this country. In 1876, he read before the Pathological Society the first recorded case, in this country, of scurvy-rickets. These five short papers should be carefully studied: they were of more value than many which are ten times longer. Though we may wish that he had written more, yet there was, perhaps, no man in our profession who taught more. He never accepted the presidency of any of the societies; but he often spoke at the meetings, and always men loved to hear him, for it was impossible not to feel that the man himself was greater than the greatest of his works.

He was curiously like Ambroise Paré. Thanks to le Paulmier, and to Paré's own writings, we know Paré well: and the likeness between the two men, though more than 300 years are between them, is wonderfully close. The same directness or simplicity of purpose, the same independence, the same way of "treating not the disease but the patient": in these, and in many other aspects, the two lives reflect the same light. In operating, and in the general management of his cases, Sir Thomas Smith rather distrusted complex and elaborate methods and apparatus, and preferred the exact use of all that he had proved good by long experience: but he was so ingenious, so quick in finding resources and adaptations, that nothing of his work was ever old fashioned. He neither approved of novelties, nor disapproved of them; he went to Edinburgh, to study Listerism for himself, and was the first to employ the Listerian method in St. Bartholomew's Hospital; and he gave careful thought to every proposed new operation: but always with his mind set on the patient, no less than on the operation. "Of all that one remembers of him," writes his pupil and friend, "nothing is more vivid than his passionate desire to do the right thing for the patient. And, by that, I mean not only that he gave profound attention to every point of the treatment, and watched very gravely the course of the case,



SIR THOMAS SMITH, BART., K.C.V.O.,
HONORARY SERJEANT-SURGEON TO H.M. THE KING.

and made frequent use of consultation with his colleagues, and weighed the *pros* and *cons* of every major operation: but he also gave to his hospital patients immeasurable sympathy. To go round the wards with him, was to learn his compassion and humility. It was no 'bedside manner'; he had no other manner; it came natural to him, if one may call such gifts natural: he would just sit by the bed, and take the patient's hand, and the thing was done, in a moment, absolutely perfect. There never was, nor ever will be, more gentleness, more pity, given to hospital patients. He was compassionate, not with any superficial sentiment, but with emotion: he was 'moved to pity.' He despised, of course, all solemnity, book-learning, theorising, and guessing. If he did not know what was the matter with a patient, he said so, and rather enjoyed saying it. 'The more you see of these cases,' he once said, of acute abdominal cases, 'the less you know about them.' At the weekly consultations at the hospital, he was inclined rather to be silent than to speak, if he found his colleagues talking vaguely. His clinical lectures were short, vivid, personal: and they were, assuredly, among the most original and memorable lectures ever heard at the hospital. He had no equal in the art of putting a case in plain well-chosen direct words: he made you feel the human side of practice, the responsibilities of surgery, the patient's risk, the anxiety of the day's work, the happiness of saving a life. He got students to see what grave and urgent affairs were waiting for them, so soon as they were qualified: he taught them the habit of thinking of operations as patients think of them.

"I had the honour of assisting him, for many years, in his private practice. What he was to the poor, that he was to the rich. I do not mean that he ignored, or pretended to ignore, the difference between ranks: he was far above that. I mean that he was so kind, so sympathetic, to the poor, that he could not be kinder, nor more sympathetic, to the grand people. Whether his patients came from Leather-lane, or lived in Park-lane, it was all one to him, one way of going about doing good. Wherever he happened to be, virtue went out of him. That was part of his profound influence: he saw straight into the hidden life. He understood men and women, as if he had created them: and all their little secrets were bare, when he looked into their hearts. 'He saw life steadily, and saw it whole'; without sentimentality, and without illusions: for he had gone through the valley of the shadow of death, and could enjoy the relief of laughter. And, of course, many of us think of him chiefly because of his delightful humour, his wit, his fanciful talk, his irony, his inimitable way of wrapping-up wisdom in chaff. To hear him talk, at a dinner-party, was like the sudden coming out of a stuffy room into the open air, with the wind in your face and the sound of the sea in your ears. He alone could have summed-up another great surgeon thus: 'the mildest-looking man that ever scuttled a ship.' He alone could have said, of an eminent surgeon's son, that he was 'born with a silver director in his mouth.' But what is the good of remembering two jests out of ten thousand? Only, they who did not know the tragedy of his life, missed the whole beauty of its comedy. It is not too much to say, that he never recovered from the grief of his wife's death. For all the love that his children have given him, he was still longing for her love: and, for all the crowd of us who were proud to be his friends, he was lonely. He carried his loss about with him for thirty years: it is in every line of his face. That is what set his laughter and his humour so high above the complacent smiles and measured witticism of lesser men. He had come out of such grief as nearly killed him, and he has taken the scars of it to his grave. Yet, so great was his humanity, so inexhaustible his sympathy, that he seemed, always, in love with life. And, indeed, so he was. For he heartily enjoyed a holiday: he was a keen fisherman, he delighted in a day's shooting, in half-a-day's golf, in a game of bridge. He enjoyed, in short, ordinary amusements, though they were now and again wearisome to him: and, wherever he went, happiness came with him."

Till a few months ago, Sir Thomas Smith seemed in good health. Then, he began to lose strength, and was compelled, by the weakness of the heart, to resign all work, and to be an invalid. He was attended, in his last illness, by his son-in-law, Dr. Garrod. He had little pain, and no great distress of breathing: and he died, in his sleep, on Friday, Oct. 1st. He is succeeded in the baronetcy by his eldest son, Mr. T. Rudolph Hampden Smith, F.R.C.S., of Stockton. His body was buried, on Wednesday, in the Finchley Cemetery: the funeral service was read by the Bishop of Oxford. A memorial service held, at the same time, in St. Mark's, North Audley-street, was conducted by the Dean of Salisbury, assisted by the Rev. H. J. Watters. His Majesty the King was represented by Sir Frederick Treves, and there was a large attendance of relatives and friends, including Sir Richard Douglas Powell, President of the Royal College of Physicians of London, and Mr. Butlin, President of the Royal College of Surgeons of England.

Our illustration is a reproduction of a photograph by Lafayette, Limited.

DEATHS OF EMINENT FOREIGN MEDICAL MEN.—The deaths of the following eminent foreign medical men are announced:—Dr. J. Cartellieri, who effected many discoveries of ancient pile dwellings in Bohemia.—Dr. Alber H. Marvin, lecturer on rhinology in the Cleveland College of Physicians and Surgeons.—Dr. Henry C. Chapmay, formerly professor of forensic medicine in the Jefferson Medical College, Philadelphia.—Dr. E. A. Chevassu, inspecting medical officer in the French army.

Medical News.

EXAMINING BOARD IN ENGLAND BY THE ROYAL COLLEGES OF PHYSICIANS OF LONDON AND SURGEONS OF ENGLAND.—At the First Professional Examination of the Examining Board in England held on Sept. 28th, 29th, 30th, and Oct. 1st, the following gentlemen were approved in the undermentioned subjects:—

Chemistry and Physics.—Cecil Bluett, Sydney University and London Hospital; Ernest Richard Gordon Greville, Birkbeck College; Leon Kahan, London Hospital; John Lyon, London Hospital; Kenneth Holl McMillan, St. Thomas's Hospital; Pierre Joseph François Louis Rathier du Vergé, Guy's Hospital; and Hugh Gordon Sparrow, King's College.

Chemistry.—Alma Percy Ford, London Hospital; Arthur Causton Freeth, St. Mary's Hospital; Frank Sykes, Leeds University; Arthur Geoffrey Turner, St. Bartholomew's Hospital; Algernon Randolph Upton, St. Bartholomew's Hospital; George William Watson, Leeds University; and Kim Glen Wee, St. Thomas's Hospital and University College.

Physics.—Hallowes Lloyd Addison, King's College; Paulin Roger Chevreau, Guy's Hospital; Basil Anderson Cooke, Sheffield University; Thomas Sacheverell Greenaway, Westminster Hospital and King's College; John Casper Münch, London Hospital; and Henry John Hugh Symons, King's College.

Biology.—William Thomas Bell, University College; Edward Henry Brien, Liverpool University; Alma Percy Ford, London Hospital; Harold Percy Gabb, University College; Stanley Victor Percy Pill, St. Mary's Hospital; Sydney William Gardiner Ratcliff, Birkbeck College; Khan Sahib, Bombay University; William Henry Arthur Douglas Sutton, Guy's Hospital; Frank Sykes, Leeds University; Oscar Ramsay Unger, University College; and George William Watson, Leeds University.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.—At the Preliminary Science Examination for the Licence in Dental Surgery of the Royal College of Surgeons the following gentlemen were approved in the subjects indicated below:—

Chemistry and Physics.—Sidney Adams, City of London College; Francis Edward Stuart Brailsford, Charing Cross Hospital; Harold Bridgewater Bramley, Liverpool University; Arthur Caspar Stevenson, Cottam, Charing Cross Hospital; Richard Cowell, University College, Bangor; Robert Lister Donn, Guy's Hospital; Francis Arthur Everett, Charing Cross Hospital; John Stanley Frank Horton, Polytechnic Institute; Ernest Victor Jones, Charing Cross Hospital; Percy King, Technical College, Portsmouth; Lancelot Turtle Montgomery, Guy's Hospital; and Frank Bedford Stradling, Technical School, Gloucester.

Chemistry.—Frank Lodge, Municipal Technical School, Halifax.

Physics.—Aurelius Percy Kincaid-Smith, Charing Cross Hospital; and Roy Oswald Shilton, Birmingham University.

UNIVERSITY OF CAMBRIDGE.—The following appointments have been made:—Demonstrator of Comparative Anatomy: F. A. Potts, M.A., Trinity Hall. Demonstrator of Animal Morphology: L. A. Borradaile, M.A., Selwyn College. Demonstrator of Chemistry: F. W. Dootson, M.A., Trinity Hall. Senior Demonstrator of Botany: F. T. Brookes, M.A., Emmanuel College. Junior Demonstrator of Botany: D. Thoday, M.A., Trinity College.—The following have passed the Examination in Tropical Medicine and Hygiene:—

P. H. Bahr, Trinity; C. S. Bowle-Evans, Emmanuel; J. C. Kennedy; J. L. Lanham; and H. Macfarlane.

UNIVERSITY OF GLASGOW.—The following have passed the first professional examination for the degrees of Bachelor of Medicine (M.B.) and Bachelor of Surgery (Ch.B.) in the subjects indicated (B., Botany; Z., Zoology; P., Physics; and C., Chemistry):—

Robert Armstrong (B., P.), George Flett Barr (B., P.), Andrew Duffield Blakely (P.), Abraham Blashky (B.), William Ernest Boyd (B., P.), Robert William Brander (B., P.), William Adam Brechin (B., P.), David Peebles Brown (B., P.), William Hunter Brown (B., P.), Alexander Grahame Buchanan (Z.), William Edmund Alexander Buchanan (B., P.), James Wilson Burton (C.), James Campbell (B., P.), William Leonard Cassells (Z.), Benjamin Cohen (B., P.), Wallace MacCallum Conley, M.A. (B., P.), George Gibson Cooper (B., Z.), Thomas Muir Crawford (B., P.), Nathaniel Crichlow (B., P.), Lawrence Crombie (B., Z., P.), Gabriel Daniel de Kock (Z., C.), William Donald (P.), Thomas Ingram Dun (P.), Thomas Ferguson (B., P.), James Bryan Fotheringham (Z.), James Fraser (P.), Ian Grant (B., P.), Robert Masson Greig (B., P.), William John Henry (B., P.), George Hislop (B., P.), William Hornsby (B., P.), Thomas Cameron Houston (Z.), John Ferguson Hutton, M.A. (B., Z., C.), David Johnston (B., P.), John Finlayson Lang, M.A. (B.), Alexander Lindsay (P.), Carel Johannes van Lingen (Z., P.), Reginald Lyon (Z.), Douglas M'Alpine (Z., P.), Daniel Steel M'Bean (B., P.), James Learmont M'Bean (B., P.), John Fergusson M'Creath (P.), Hugh Douglas M'Crossan (C.), James Walter M'Donald (B., P.), John Bowes M'Dougall (B., P.), John M'Ghie (C.), John MacInnes (B., P.), Charles Robertson M'Intosh (B., P.), Robert Hugh M'Killop (C.), Donald Mackinnon (B., Z., P., C.), James Robertson Cowper Mackintosh (B., P.), Kenneth Norman MacLean (B., Z., P.), Robert M'Lean (B., P.), Neil Macleod (P.), Frederick William M'Millan (B., P.), Robert Martin M'Minn (Z., P.), Andrew Paton Martin (P., C.), William Martin (B.), Walter John May (B., P.), William Meikle (B., P.), Archibald Underwood Millar, M.A. (B., P.), Alexander Dryden Moffat (B., P.), William Mitchell Hewitt Muir (P.), Thomas Murray Newton (B., P.), Thomas Augustine O'Brien (B., P.), William O'Brien (B.), William Luddington Peacock (B., P.), John Stuart Prentice (B., P.), Angus M'Innes Ramsay (C.), Adam Rankine (Z., C.), David Reid Eccles Roberts (B., P.), Alfred Leopold Robertson (C.), David Bell Robertson (B., P.), Robert Cecil Robertson (B., P.), Stanley Robertson (B., P.), Stuart Robertson (B., P.), Stuart Dewar Robertson (B., C.), George William Ronaldson (Z.), Donald Alexander Ross (B.), Archibald Watson Russell (B., Z., P., C.), Alexander Scott (B., P.), John Sillars (Z., C.), James Reid Sinclair (B., P.), Thomas Robertson Sinclair (C.), John Kenneth Smith (B., P.), Ronald Stewart (B., P.), George Taylor (Z.), Robert Tennent (B., P.), Cecil Raymond Tytler Thompson (B., P.), Robert Mitchell Thomson (B.), James Walker (B.), Robert Bruce Wallace (Z., C.), William Semple Wallace (P.), Henry Currie Watson (B.), John Allan White (C.), James Whiteside (Z., C.), Clive Alan Whittingham (B., P.), Joseph Bannister Williamson (B., P.), Robert Horatio Williamson (B., P.), Alexander Sweet Wilson (B., C.), Thomas Wilson Wylie (B., P.), and John Miller Young (Z., C.).

Women.—Nora Maud Aden Allen (B., P.), Cecilia Small Turnbull Anderson (B., P.), Grace Gillies Turnbull Anderson (B., P.), Margaret Jarvey Brown (B., P.), Ethel Crawford (C.), Mary Pringle Hislop (C.), Mary Anne Kirk (P., C.), Annie Rankine M'Kail (B., P.), Margaret Helen M'Killop (C.), Marion Thompson (B., P.), Sarah Adam Watson (B., P.), Marguerite Wilson (B., P.), and Josephine Adelaide Woods (B., Z.).

The following have passed the Second Professional Examination for the degrees of Bachelor of Medicine (M.B.) and Bachelor of Surgery (Ch.B.) in the subjects indicated (A., Anatomy; P., Physiology; and M., Materia Medica and Therapeutics):—

Mark James Aitken (A., M.), James Browning Alexander (A.), John Campbell Hill Allan (A., P., M.), James Wallace Anderson (A.), Alexander John Archibald (A.), Charles Averill (M.), Archibald MacAllister Blackwood (M.), Simon Harry Bloom (P., M.), John Bower (A.), David Sands Brough (A., M.), James Turner Brown (M.), Robert Archibald Brown (M.), William Murdoch Buchanan (A.), George Cochrane, M.A. (A.), Robert Corbett Corbett (A.), Alexander Moffat Dunlop (A.), Walter Elliot Elliot (P.), Philip Figdor (P.), James Findlay, M.A. (A.), Robert Findlay (P.), Hugh Forrest (A.), Alexander Fraser (A.), Leander Lowrie Fyfe (A.), Adolph Robert Hanns Geyer (P.), John Gibson (M.), Cecil William Fletcher Greenhill (M.), Andrew Smith Hannay (A.), Alexander Gibson Henderson (A., P., M.), James Hendry, M.A. (M.), Andrew Gray Holms (A.), William Hunter Howat (A.), Felix Arthur Kerr (A., P.), Thomas Joseph Kirk (A.), Alexander Kirkhope (M.), Norman Veitch Lothian (A., P.), Norman M'Farlane (A.), James David Mackinnon (A.), Archibald M'Leod (A.), Murdoch Hugh MacLeod (A., P.), William Wyllie MacNaught (M.), Stephen Anderson MacPhee (A.), George Hanson M'Robert (A., P., M.), Osborne Henry Mavor (P., M.), Stuart Spence Meighan (M.), Andrew Muir (P.), Arthur Alexander Murison (P.), Andrew Neilson (M.), Hugh Paterson (A.), Henry Charles Deans Rankin (A., M.), Hugh Young Riddle (A.), James Gordon M'Gregor Robertson (M.), John Livingstone Scott (P.), William Logan Scott (A.), William Sneddon (A.), Roderick Alexander Steven (A.), John Alexander Stewart (P.), Lawrence Tweedie Stewart (A.), Edward Napier Thomson (A.), William Tudhope (A.), Alexander Gold Waddell (A., P., M.), Alexander Guthrie Semple Wallace (M.), Hugh Ferguson Watson, L.R.C.P. (A.), Egerton Carl White (A.), Thomas Whitelaw (A., P.), Archibald Wilson (P.), and Douglas Wilson (M.).

Women.—Isabel Inglis (A., M.), Katherine Stewart MacPhail (M.), Lucy MacBean Ross (A., P.), Christina Hamilton Shearer (A., M.), and Isabel Jane Stark (P.).

The following have passed the third professional examination for the degrees of Bachelor of Medicine (M.B.) and Bachelor of Surgery (Ch.B.) in the subjects indicated (P., Pathology; and M., Medical Jurisprudence and Public Health):—

Thomas Adam, M.A., M.R.C.S. (P., M.), John Andrew Aitken (P., M.), Robert Richmond Archibald, M.A., B.Sc. (P., M.), John Bruce Baird, B.Sc. (M.), Charles Stewart Black (P., M.), James Elliot Black (P., M.), Alexander Hogg Brown (P.), James Alexander Stewart Burges (M.), Donald Downie (P.), Peter Drummond (M.), William Deanburn Dunlop (P.), Thomas Scoular Fleming (P., M.), Joseph Graham (P.), John Reid Haldane (M.), William Hamilton (M.), Angus Macaulay (P., M.), John Gladstone Mackenzie (M.), Thomas Jones Mackie (M.), Murdo Mackinnon (M.), Alexander Thomson M'Whirter (M.), Frank William Martin (M.), Robert Stewart Miller (M.), Clark Nicholson, M.A. (P., M.), Arthur Stanley Richmond (P., M.), John Ivison Russell (M.), Alexander Hunter Sinclair (M.), James David Speid Sinclair (M.), John Torrance Weir Stewart (P.), John Norman Macdonald Sutherland (P., M.), William Oswald Taylor (M.), James Lachlan Ure (M.), William Samuel Waterhouse (P., M.), James Williamson (Holytown) (M.), George Jackson Wilson (M.), and John Young (P., M.).

Women.—Mary Alexander, M.A. (P., M.), Marie Alexina Annette Beard (P.), Louisa Emma Dodge (P.), Mary Amelia Pilliet (M.), Jemima Wallace (M.), and Marion Aitken Wylie, M.A. (M.).

The following passed with distinction in the subjects indicated:—

FIRST EXAMINATION.

Botany.—Robert Horatio Williamson and Marguerite Wilson.

Physics.—John Bowes M'Dougall, James Robertson Cowper Mackintosh, Thomas Murray Newton, Stanley Robertson, Stuart Robertson, Marion Thompson, Sarah Adam Watson, and Joseph Bannister Williamson.

Chemistry.—John Sillars.

THIRD EXAMINATION.

Medical Jurisprudence and Public Health.—Thomas Jones Mackie and James Lachlan Ure.

FOREIGN UNIVERSITY INTELLIGENCE.—*Bologna:* Dr. Bernardino Lunghetti has been recognised as *privat-docent* of Anatomy.—*Breslau:* Dr. Georg Lenz has been recognised as *privat-docent* of Ophthalmology.—*Bucharest:* Dr. Stanculeanu has been appointed Professor of Ophthalmology. Dr. Kubinyi has been recognised as *privat-docent* of Midwifery.—*Buffalo:* Dr. Robert F. Sheehan has been appointed Professor of Hygiene, in succession to Dr. Henry R. Hopkins, resigned.—*Chicago (Northwestern University):* Dr. J. A. Abt, of the Rush Medical College, has been appointed Extraordinary Professor of Children's Diseases.—*Cornell (New York):* Dr. William B. Coley, Lecturer in the College of Physicians and Surgeons, New York, has been appointed Professor of Surgery.—*Florence:* Dr. Ferruccio Schupfer has been promoted to the Ordinary Professorship of Internal Pathology.—*Freiburg:* Dr. B. Salge of Göttingen has been appointed Extraordinary Professor of Children's Diseases.—*Genoa:* Dr. Aldo Fabris has been appointed Extraordinary Professor of Pathological Anatomy.—*Harvard:* Dr. Elmer E. Southward has been appointed to the chair of Neurology, Dr. Myles Standish to the chair of Ophthalmology, and Dr. Milton J. Rosenau to that of Hygiene and Preventive Medicine.—*Pisa:* Dr. Giuseppe Tusini has been appointed Extraordinary Professor of External Pathology.—*Prague (German University):* Dr. Karl Walko, *privat-docent* of Medicine, has been granted the title of Extraordinary Professor.—*Rome:* Dr. L. Concetti has been promoted to the Professorship of Children's Diseases.—*Tübingen:* Dr. Alfred Busch has been recognised as *privat-docent* of Psychiatry.—*Würzburg:* Dr. Gerhard Hotz has been recognised as *privat-docent* of Surgery.

KING EDWARD'S HOSPITAL FUND FOR LONDON.—Amongst the latest contributions received at the Bank of England for King Edward's Hospital Fund for London are the following: Annual subscriptions—Alderman Sir W. Vaughan Morgan, Bart., £50; Rev. A. W. Davies, £25; Messrs. Tattersalls, £25. Donations—Mr. C. W. Drabble, £105; Home and Colonial Stores, Limited, £26 5*s.*

WORTHING ISOLATION HOSPITAL.—The borough of Worthing now possesses a good modern isolation hospital, which was formally opened on Sept. 29th. Situate at Swandean, the site is in every way excellent for such an establishment. For a good many years there has been accommodation there for infectious cases, but under cramped conditions of space it has been found exceedingly difficult to isolate different kinds of cases. The erection of two ward pavilions allows accommodation for 32 patients in all, and one ward is to be set apart for diphtheria and the other for scarlet fever. Originally the idea was to erect one pavilion for 14 beds, but consultation with the Local Government Board led to the adoption of the present hospital. The total

cost, together with the necessary land, has been £10,000, and this provision should meet the requirements of the borough for many years.

THE GUILD OF ST. LUKE.—The annual meeting and festival of the Birmingham Ward will be held on Wednesday, Oct. 27th, at 8 P.M., at Holy Trinity Church, Coventry, when the festival sermon will be preached by the Lord Bishop of Worcester. All medical practitioners in the district are invited to attend.

INSTITUTE OF HYGIENE.—The progress of the Midland Counties branch during the two years of its existence has been so encouraging that it has been thought wise to acquire a hall to provide accommodation for the delivery of lectures, the holding of examinations, and especially for the establishment of a permanent exhibition of hygienic products. This exhibition was opened last week by Sir William Bennett.

THE SALISBURY INFIRMARY.—The 142nd anniversary service of Salisbury Infirmary was held at the Salisbury Cathedral on Sept. 28th. The members of the corporation, wearing their robes of office, joined the procession from the infirmary, which included the Earl of Pembroke (visitor to the institution), Earl Radnor (the President), the court of governors, and the medical staff. The sermon was preached by the Dean, Dr. Page Roberts.

PTOMAINE POISONING FROM SHRIMPS.—After partaking of some shrimps purchased from a street vendor at Shoreham (Sussex) a little girl of six years was seized with abdominal pains and died within a very short time. At the inquest on Sept. 29th Dr. W. A. Kinloch said that death was due to exhaustion following ptomaine poisoning, and a verdict was returned accordingly. The jury added a rider calling the attention of the urban council to the hawking and selling of food which was unfit for consumption, and the coroner, Mr. F. W. Butler, said that he would bring the matter before the notice of the police.

THE HOSPICE OF THE LITTLE ST. BERNARD.—The Order of St. Maurice, to which the hospice belongs, in view of the increasing numbers of well-to-do visitors of all nationalities who pass the night at it, has decided to charge from 3 fr. to 5 fr. for the use of a room and 2 fr. 50 c. for board *per diem*. This decision it has come to in the interests of the many humble and needy wayfarers for whom the hospice was primarily founded, and who not seldom have been "crowded out" by others well able to pay for the accommodation and the *nourriture* they have hitherto been not above accepting gratuitously.

UNIVERSITY OF LONDON.—A course of eight lectures on "Recent Researches on Chloroform Anæsthesia" will be given during the first term of the present session by Professor G. A. Buckmaster and Mr. J. A. Gardner in the Physiological Laboratory of the University on Tuesdays at 5 P.M., beginning on Oct. 12th. During the second term a course of eight lectures on a subject to be announced will be given by Mr. W. B. Hardy, F.R.S., on Tuesdays at 5 P.M., and during the third term a course of eight lectures on "The Physiology of the Peripheral Nerves" will be given by Dr. N. H. Alcock on Tuesdays at 5 P.M. Details of these courses will be published at a later date. The lectures are addressed to advanced students of the University and to others interested in physiology. All the courses have been recognised as courses of advanced lectures which a candidate at the B.Sc. (honours) examination in physiology may name for part of his practical examination. Any member of a London school of medicine, whether an undergraduate of this University or not, is entitled to a card of admission on application to the academic registrar. In addition a course of eight lectures on "Recent Advances in the Physiology of Digestion," by Professor E. H. Starling, F.R.S., will be given at University College, on Fridays at 5 P.M., beginning on Oct. 15th; a course of six lectures on "The Pineal and Pituitary Bodies" will be given by Professor A. Dendy, F.R.S., and Professor W. D. Halliburton, F.R.S. at King's College, on Mondays, at 4.30 P.M., beginning on Nov. 1st; and a course of eight lectures on "The Physiological Significance of Variations in the Chief Constituents of Urine" will be given by Dr. E. L. Kennaway and Mr. J. H. Ryffel, at Guy's Hospital, on Thursdays, at 5 P.M., beginning on Oct. 7th. For further information application should be made to the authorities of the different Colleges.

KING'S COLLEGE (UNIVERSITY OF LONDON).—A public inaugural lecture will be delivered on Oct. 12th, at 4 P.M., by Professor C. A. Barkla, D.Sc., on "Röntgen Rays." The chair will be taken by the Vice-Chancellor of the University of London.

FLAG RANK FOR A NAVAL PHYSICIAN.—*Überall*, the organ of the German Navy League, announces amongst recent promotions to the rank of rear-admiral in the German navy the name of Dr. Runkwitz, "Naval General Physician," lately principal medical officer of the High Sea Fleet.

ST. BARTHOLOMEW'S HOSPITAL AND COLLEGE (UNIVERSITY OF LONDON).—The following scholarships have been awarded on the results of a recent examination: (1) senior entrance scholarship in science (value £75), A. G. Evans, B.A., Trinity College, Cambridge; (2) senior entrance scholarship in science (value £75), A. C. Roxburgh, B.A., Trinity College, Cambridge, and G. Sparrow, B.A., Caius College, Cambridge (equal); (3) junior entrance scholarship in science (value £50), P. O. Ellison and D. H. D. Wooderson (equal); (4) entrance scholarship in arts (value £100), C. Cooke, Magdalen College School, Oxford; and (5) Jeaffreson exhibition in arts (value £50), G. C. Linder, Brighton Grammar School.

GUY'S HOSPITAL MEDICAL SCHOOL.—The following entrance scholarships and certificates have been awarded: Senior Science Scholarship for University Students, £50, Trevor Brady Heaton, B.A., Christ Church College, Oxford. Junior Science Scholarships: £150, Charles Hamilton Gould, Preliminary Science Class, Guy's Hospital, and Christchurch, New Zealand; £60, James York Moore, Preliminary Science Class, Guy's Hospital; equal certificates, Allen Noel Minns, Thetford Grammar School, and Cyril Henry Edwards, St. Paul's School, West Kensington, W. Entrance Scholarships in Arts: £100, Henry Francis Thomas Hogben, Bedford Grammar School, and William Morris Lansdale, St. Olave's and St. Saviour's Grammar School, equal; £50, James Kyle, University Tutorial College.

THE HEALTH OF MALTA.—Sir E. M. Merewether, K.C.V.O., C.M.G., Chief Secretary to the Government of Malta, reporting on the Blue-book of the colony for 1908–09, states that the estimated population on April 1st this year was 212,888, an increase of 2914 on the previous year. The birth-rate in 1908–09 was 38·22 per 1000, as compared with 39·57 per 1000 in 1907–08. The death-rate of the civil population in 1908–09 was 23·4 per 1000, as against 23·09 per 1000 in the previous year. The general state of the public health was on the whole good. There were 471 cases of Mediterranean fever, with 50 deaths, as against 520 cases, with 45 deaths, in the previous year. There were only eight cases in the fleet and garrison, none of which proved fatal. In the Central (Civil) Hospital the use of unboiled milk has been discontinued since 1907–08, and a remarkable diminution in the number of cases contracted in that institution has been the result. The number of cases of Mediterranean fever contracted in the Civil Hospital in 1905–06 and 1906–07 was 23 and 11 respectively, while only five cases were reported in 1907–08 and none at all in 1908–09. In May, 1908, a committee was appointed to consider the steps to be taken for the suppression of Mediterranean fever among the civil population, the report of which was received in January last. Regulations were drawn up on the general lines indicated by the committee and were brought into force on July 1st, 1909. There was a considerable abatement in the measles epidemic, but there was a serious epidemic of influenza, 440 cases with 16 deaths being reported. All but one of the 23 deaths from diphtheria occurred among the civil population. The percentage of deaths to the number of cases was 15·6, as against 23·3 in 1907–08 and 32·2 in 1906–07. Owing to the ignorance or carelessness of parents in feeding and nursing their infants, infant mortality continues to be excessive. The number of deaths which occurred among children under 12 months was 1824, or 224 per 1000 births, while the number of those who died before reaching the age of five years was 2569, or 316·57 per 1000 births. For the reason given,

enteritis is the disease which causes the greatest number of deaths amongst infants, the total number of children who have died of that disease in the past ten years being 10,347.

ROYAL COLLEGE OF SURGEONS OF ENGLAND: MUSEUM DEMONSTRATIONS.—The following demonstrations of specimens in the Museum will be given in the theatre of the College in Lincoln's Inn-fields for medical practitioners and advanced students by Professor Arthur Keith and Professor S. G. Shattock alternately:—Oct. 15th, 5 P.M. (Professor Keith): Specimens illustrating Various Forms of Constrictions and Occlusions found in the Course of the Alimentary Canal. Oct. 18th, 5 P.M. (Professor Shattock): Osteoma. Oct. 22nd, 5 P.M.: Specimens illustrating Various Forms of Congenital and Acquired Diverticula of the Alimentary Canal. Oct. 25th, 5 P.M.: Adenoma and Papilloma. Oct. 29th, 5 P.M.: Specimens illustrating Malformations of the Abdominal Wall and Irregularities in the Fixation of the Viscera. Nov. 1st, 5 P.M.: Sarcoma.

Parliamentary Intelligence.

NOTES ON CURRENT TOPICS.

The Parliamentary Session.

THE Parliamentary session, it now seems probable, will extend into the middle of November. If the majority of the peers carry out the intention which is more and more freely attributed to them, of refusing to pass the Finance Bill, a General Election is inevitable. This, of course, is the dominating factor in politics at present. If a General Election does become necessary, it will in all probability take place in January rather than at the end of the year.

The Housing and Town Planning Bill.

The House of Lords has considered the Housing and Town Planning Bill on report, but the drastic amendments made in committee remain for the most part. No alteration has been made in Clause 69, which deals with the appointment of county medical officers. In committee two subsections were cut out at the instance of Lord BELPER. One of these subsections gave the Local Government Board power by order to prescribe the duties of medical officers of health appointed by a county council. The other rendered these medical officers irremoveable except with the consent of the Local Government Board. No attempt was made to reintroduce these provisions, and accordingly the Bill now goes forward for third reading without them. The Lords occasionally exercise the privilege of amending a Bill on third reading, but after their attitude in committee on these points any revision of the text of the clause as it now stands is quite improbable.

HOUSE OF LORDS.

MONDAY, OCT. 4TH.

District Medical Officers of Health.

During the consideration on report of the Housing and Town Planning Bill,

The Earl of HARROWBY moved to amend Clause 69 (appointment of medical officer by county council) by introducing into it the following subsection: "A medical officer of health of a district who is not in private practice shall not be appointed for a limited period only and shall be removeable by the electing authority with the consent of the Local Government Board and not otherwise." He said that the district medical officers of health should have the protection of this provision, which they were anxious to obtain. It was said that the Government intended to bring in a Bill next year to deal with such matters, but the present President of the Local Government Board might not be in office then to bring it in, or there might be no time to deal with it.

Earl BEAUCHAMP (who had charge of the Bill on behalf of the Government) expressed sympathy with the object of the amendment, but deprecated the introduction of such a provision in a clause dealing exclusively with the medical officers of counties. It might be better to take the matter up next session in a Public Health Bill.

The Earl of HARROWBY withdrew his amendment.

HOUSE OF COMMONS.

THURSDAY, SEPT. 30TH.

Lavatory Accommodation for Workmen.

Mr. WARDLE asked the Secretary of State for the Home Department whether his attention had been called to the practice extensively carried on in Germany and America whereby wardrobe and lavatory accommodation was provided for workmen at the place of their employment; and whether, in view of the benefit in public health and cleanliness to be derived from such a practice, he would consider the advisability of securing the extension of the practice in this country.—Mr. GLADSTONE replied: My attention has been called to this matter and in connexion with mines it has received the consideration of the Royal Commission on Mines. The honourable Member will find their recommendations on the subject in Part XVIII. of the recently issued report. In the case of a number of trades where the conditions of work make the provision of lavatory and cloak-room accommodation especially important for the health of the workpeople, the employer is now required under the Factory Acts to provide it, and in many other cases such accommodation is supplied voluntarily by employers. The report of the chief inspector of factories for 1908 notes, I am glad to say, a growing tendency to provide improved facilities for washing in many districts, and the question is receiving the constant attention of my department.

The Medical Treatment of Suffragist Prisoners.

Mr. SNOWDEN asked the Secretary of State for the Home Department whether he had any information as to the state of health of the women suffragist prisoners and whether they were still being fed by force.—Mr. GLADSTONE answered: I am glad to say that the improvement of the health of all the suffragist prisoners continues. I am not absolutely able to answer the question as to whether they are still fed by force. "Force," however, is hardly the right word to apply, because I understand that although three of them are being fed by the medical officers they are in a sense fed without any resistance on the part of the prisoners. I may say that in no case has the stomach-pump been used.

Mr. SNOWDEN: May I ask whether it is not a fact that the women are handcuffed during the time food is being administered?

Mr. GLADSTONE: No, sir; there is no truth whatever in that statement.

Mr. A. LYNCH: May I ask why the right honourable gentleman so ostentatiously puts forward the medical aspect of the case, and whether the medical officers in the prison have acted under his instructions and by his directions?

Mr. GLADSTONE: I put forward the medical officers in a prominent position because it is a medical question, and a very heavy responsibility rests upon them.

Mr. LYNCH: Is it usual for medical officers to act on the instructions of the right honourable gentleman or on their own initiative in such cases?

Mr. GLADSTONE: What authority has the honourable Member for saying that I have given instruction to the medical officers? It is the duty of the medical officers to attend to the health of prisoners in their charge and that is precisely what the medical officers have been doing in this case.

FRIDAY, OCT. 1ST.

The Medical Treatment of Suffragist Prisoners.

Mr. KEIR HARDIE asked the Secretary of State for the Home Department whether he had received any report from the medical officer at Winson Green Gaol, Birmingham, detailing the method adopted to administer food by force to the women suffrage prisoners; whether the instrument used was Blandford's œsophageal instrument, or whose; whether a screw gag was used to prise the teeth apart and keep the jaws open; whether the prisoners were strapped down, or, if not, how many attendants took part in the operation; and whether he could give the names of the women who had been subjected to this treatment.—Mr. GLADSTONE wrote in reply: I have received several reports from the medical officer. I find that Blandford's œsophageal tube has not been used; in those cases where a tube was required the ordinary soft rubber feeding-tube used in hospitals was employed. No screw gag was used, and the prisoners were not strapped down. The number of attendants present varied from one to five. I do not think it is desirable that I should mention the names of the prisoners. I am satisfied that everything has been done with the utmost gentleness possible in the circumstances, and the prisoners themselves have borne witness to the kindness of the officers.

MONDAY, OCT. 4TH.

The Medical Treatment of Suffragist Prisoners.

Mr. KEIR HARDIE asked the Secretary of State for the Home Department whether the medical officer of Winson Green Gaol, Birmingham, reported any injury to the teeth, throat, or other parts of the body of those women prisoners who had undergone the special hospital treatment known as administering food by force, and whether the medical officer had said for how long this treatment could be continued without serious injury to the patients.—Mr. MASTERMAN replied (on behalf of Mr. GLADSTONE): The medical officer reports that no injury to the throat, teeth, or other parts of the body has been sustained by any of the prisoners who have undergone the special hospital treatment mentioned in the question. My right honourable friend is advised on good medical authority that no serious injury is to be apprehended in any case of this kind, even if the treatment has to be prolonged for some considerable time.

Mr. KEIR HARDIE: Has the Home Office seen the report by eminent medical authorities to the effect that this treatment produces permanent injury and very often fatal results?

Mr. MASTERMAN: I have seen no such report.

Mr. KEIR HARDIE asked further how often during the past 12 months prisoners in Winson Green Gaol, Birmingham, had had food administered to them by force; whether, in the case of the women suffragists who had undergone this treatment, the operation was performed by the prison doctor or, if not by him, by whom; and what was the method adopted in connexion with the operation.—Mr. MASTERMAN replied: With the exception of these women prisoners there have been no cases in Birmingham Prison during the past 12 months in which it has been necessary to feed any prisoner forcibly. This treatment has been administered in some cases by the medical officer and in other cases by a medical practitioner who has been called in to assist him. The method has been, where practicable, feeding by means of teaspoon or from a feeding cup, but where necessary the soft rubber tube in use in hospitals has been employed.

Mr BELLOC: Has not this been the constant practice in regard to men for many years past?

Mr. MASTERMAN: It has been the constant practice with respect to men and women for many years past.

Mr. KEIR HARDIE asked whether the Home Secretary had received a petition from the parents or other relatives of some of the women suffragist prisoners in Winson Green Gaol, Birmingham, stating that they were anxious concerning the state of health of the prisoners, and praying to be allowed to send their own medical adviser to report on their condition; and, if so, whether he had been able to so far relax the prison rules as to comply with this request.—Mr. MASTERMAN answered: Applications to the effect indicated have been received, but my right honourable friend has been unable to accede to them. The prisoners mentioned are receiving full and constant attention from the medical officer of the prison, who has been in consultation with the medical authorities of the Home Office at the time when the

refusal to take food made the prisoners' state of health serious, and has had the assistance of a medical man in practice in Birmingham who has been present when food has been administered. According to the latest report received this morning the health of the prisoners continues to improve. Only one of them still refuses to take food without the use of a tube.

Meat Inspection.

Mr. WATT asked the President of the Local Government Board whether he was aware that uniformity of standard of meat inspection was enjoined and followed throughout the German Empire; and whether he proposed to adopt a similar course in this country, especially in view of the fact that cities and boroughs which adopted a high standard of inspection were penalised by the trade being sent elsewhere.—MR. BURNS replied: I am aware of the system adopted in Germany for securing uniformity of meat inspection. I do not think that it would be practicable to enforce a similar system in this country at the present time; but both by circulars which they have issued and by the inquiries made by its inspectors the Local Government Board has pressed upon local authorities and their officers the importance of uniform and efficient meat inspection. I am happy to say that in the country generally there has been a distinct improvement during the last few years in the qualifications of meat inspectors and the practice of meat inspection.

TUESDAY, OCT. 5TH.

Tuberculosis in the Post Office Service.

Mr. SUMMERBELL asked the Postmaster-General to state the number of men discharged from his department during the years 1899 to 1908 suffering from tuberculosis; and whether, on their discharge, any provision for the treatment of the disease in a home or hospital was made by his department on their behalf; and whether any money grant was made to such men.—Mr. BUXTON replied: The number of established Post Office servants superannuated on account of tuberculosis during the past ten years is as follows:—

	Men.	Women.		Men.	Women.
1899	72	 11	1904	109	 19
1900	82	 11	1905	96	 18
1901	95	 21	1906	101	 15
1902	76	 6	1907	81	 15
1903	104	 15	1908	90	 20

The established force to which these figures refer numbered in 1908 in round figures 90,000. There is no official arrangement for affording treatment to Post Office servants suffering from tuberculosis. Every established officer retiring on account of ill-health is entitled either to a pension or a gratuity under the terms of the Superannuation Acts.

Tuberculosis in the Navy.

Mr. SUMMERBELL asked the First Lord of the Admiralty to state the number of men discharged from the navy during the years 1899 to 1908 suffering from tuberculosis; whether, on their discharge, any provision for the treatment of the disease in a home or hospital was made by his department on their behalf; and whether any money grant was made to such men.—Mr. MCKENNA answered: The number of officers and men finally invalided from the service (including marines) for tuberculosis for the years 1899 to 1908 is 2673 made up as follows: 1899, 207; 1900, 185; 1901, 232; 1902, 288; 1903, 334; 1904, 353; 1905, 331; 1906, 214; 1907, 266; 1908, 283. No special provision is made for their treatment on their discharge in a home or hospital. They are paid gratuities or pensions according to their service under the ordinary regulations.

Lead Poisoning in Swansea.

Mr. CHARLES DUNCAN asked the Secretary of State for the Home Department what was the number of cases of lead poisoning during 1908 in the Swansea district in the spelter, lead, and silver works; whether such cases were on the increase; and, if so, whether any additional safeguards were to be introduced with a view to the prevention, as far as possible, of such cases in the future.—Mr. GLADSTONE replied: The number of cases in 1908 was 38, as compared with nine in 1907, but in the first eight months of this year there were 24 cases, as compared with 23 in the corresponding period of 1908. A special inquiry had been made by one of the medical inspectors of factories in regard to lead smelting and certain allied industries, and his report, which includes recommendations for further precautions, has just been received and is under consideration.

Dundee Eastern Poorhouse.

Mr. WILKIE asked the Lord Advocate whether his attention had been drawn to the case of attempted suicide in the Dundee Eastern Poorhouse some five months ago; whether he was aware that the committee appointed by the Dundee parish council to inquire into this case expressed dissatisfaction with the investigation of the medical inspector of the Local Government Board; and whether, in view of the above facts and the assertions which had been made against certain officials in the Dundee Eastern poorhouse hospital as to the treatment of patients, he would institute a public inquiry, under the Local Government Board, to investigate into the assertions made.—Mr. URE replied: In April last the case of attempted suicide referred to was formally reported to the Local Government Board. The circumstances were at once inquired into by the Board's medical inspector, who, in view of the facts then elicited, formed the opinion that the accident was such as might have occurred in any institution, however well managed. The Board was not able to attach blame to any of the poorhouse staff. Two months after the accident, and a month after the death of the inmate a subcommittee of the parish council was appointed to inquire into certain allegations affecting the poorhouse administration, and, in particular, the actions of the resident medical officer. It is the case that the subcommittee, in its report of August 11th, expressed the view that the investigation made by the medical inspector into the suicide was not so full as the seriousness of the case required, and held that the resident medical officer was to blame. The facts elicited by the medical inspector and by the evidence taken before the subcommittee leave ground, in the opinion of the Local Government Board, for a legitimate difference of opinion; but on August 24th last the Local Government Board expressed its satisfaction with the adequacy of the subcommittee's inquiry into the various complaints, and, as the resident medical officer had resigned in June, intimated that it did not propose to hold any supplementary inquiry. As the subcommittee has advanced good reasons for considering that the complaints, so far as substantiated, were all directly or indirectly due to the conduct of the resident medical officer, and, as he has long ago ceased to be a member of the poorhouse staff, the Local Government Board does not propose to reopen the inquiry.

WEDNESDAY, OCT. 6TH.

The Medical Treatment of Suffragist Prisoners.

Mr. KEIR HARDIE asked the Secretary of State for the Home Department (in the absence of the Prime Minister) whether he had received a memorial signed by Sir Victor Horsley and 116 other medical practitioners pointing out that the compulsory feeding of women prisoners was attended with the gravest risks, that unforeseen accidents were liable to occur, that the subsequent health of the person so treated might be seriously injured, and that, in the opinion of the memorialists, the action was unwise and inhumane, and praying him to use his influence to prevent the continuance of the practice; and whether he is prepared to accede to the prayer of the memorialists.—Mr. GLADSTONE replied: The memorial has been received. Though the statements it contains are not borne out by the prison medical authorities, whose experience of artificial feeding is necessarily much wider than that of the memorialists, I thought it right to refer the memorial to the President of the Royal College of Physicians of London, and I have this morning received the following letter from Sir Richard Douglas Powell:—"I beg to state that I do not agree with the opinion expressed in the memorial signed by some medical practitioners in protest against the artificial feeding of certain prisoners who refuse to take food in the normal manner. The statements contained in the memorial are inaccurate and greatly exaggerated. The method of artificial feeding is largely employed amongst those who from mental aberration refuse to take nourishment otherwise and also with those who are physically unable to take it. It would be an exaggeration to say that the method of artificial feeding is wholly free from the possibilities of accident with those who forcibly resist, but no such cases have come to my knowledge. Nor can it be said that the method is as convenient or as free from possible digestive ailments or discomforts as a reasonable diet taken naturally would be. But it may be remarked that patients have been so fed successfully for years. It is the only measure that can be adopted to maintain the health and preserve the lives of persons who persistently refuse food. I am assuming in my reply that the feeding of these patients is entirely carried out by skilled nursing attendants under careful medical observation and control."

BOOKS, ETC., RECEIVED.

HIRSCHWALD, AUGUST, Berlin.

Die Chirurgischen Krankheiten der Brust und ihre Behandlung. Von Dr. Carl Beck. Aus dem Englischen übersetzt von Dr. Schröder, Düsseldorf. Price M.12.

Spezielle Diätetik und Hygiene des Lungen- und Kehlkopf-Schwindsüchtigen. Von Dr. Felix Blumenfeld, Wiesbaden. Zweite vermehrte und verbesserte Auflage. Price M.2.80.

LEWIS, H. K., London.

The Theory and Practice of Medicine. By Frederick T. Roberts, M.D., B.Sc., F.R.C.P. Tenth edition. With Appendix, 1909. Price 12s. 6d. net.

LOCKWOOD, W., AND CO., London. (URBAN UND SCHWARZENBERG, Berlin und Wien.)

Pocket Medical Dictionary in Eight Languages (English, German, French, Italian, Japanese, Russian, Spanish, Hungarian). Edited by Dr. J. Meyer, Berlin, in Collaboration with D. O'C. Finigan, M.D. Berlin, M.R.C.P. Lond. Price 20s.

LONGMANS, GREEN, AND CO., London, New York, Bombay, and Calcutta.

Anatomy, Descriptive and Applied. By Henry Gray, F.R.S. Seventeenth edition. Edited by Robert Howden, M.A., M.B., C.M. Notes on Applied Anatomy, revised by A. J. Jex-Blake, M.A., M.B., M.R.C.P., and W. Fedde Fedden, M.S., F.R.C.S. Price 32s. net.

The Vegetable Proteins. By Thomas B. Osborne, Ph.D. Price 3s. 6d. net.

MARLBOROUGH, E., AND CO., London.

Norwegian Self-Taught. With Phonetic Pronunciation. By C. A. Thimm. Fourth Edition. Revised and enlarged by P. Th. Hanssen. Price, wrapper, 2s.; cloth, 2s. 6d.

REID, ANDREW, AND CO., LIMITED, London and Newcastle-upon-Tyne.

Armstrong College, Newcastle-upon-Tyne. (In the University of Durham.) Calendar. Session 1909–1910. Price 1s. Post free, 1s. 4d.

SPRINGER, JULIUS, Berlin.

Bericht über die Tätigkeit der zur Erforschung der Schlafkrankheit im Jahre, 1906-07, nach Ostafrika entsandten Kommission. Erstattet von Dr. R. Koch, Kaiserlicher Wirklicher Geheimer Rat, Dr. M. Beck, und Dr. F. Kleine. Price not stated.

UNIVERSITY PRESS, Liverpool. (CONSTABLE, ARCHIBALD, AND CO., LIMITED, London.)

Studies in Tuberculosis. By Henry Clarke, M.A., M.D. Cantab. Price 5s. net.

VINCENT MUSIC COMPANY, LIMITED, London. (DONLAN, THOMAS J., Boston, Mass., U.S.A.)

Science and Singing. A Consideration of the Capabilities of the Vocal Cords and Their Work in the Art of Tone Production. By Ernest G. White. Price 4s. 6d. net, or $1.25.

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.*

BEVIR, GEORGE, L.R.C.P. Lond., M.R.C.S., has been appointed District Medical Officer by the Clutton (Somerset) Board of Guardians.

COOKE, CHARLES JAMES, M.D., M.Ch., B.A.O. R.U.I., has been appointed Medical Officer to the Board of Trade at Plymouth.

DESPREZ, H. S., L.R.C.P. & S. Edin., L.F.P.S. Glasg., has been appointed Certifying Surgeon under the Factory and Workshop Act for the North Tawton District of the county of Devon.

DREW, J. HARMER, M.B., B.S. Lond., has been appointed Clinical Assistant to the Chelsea Hospital for Women.

EDWARDS, A. H., M.B., C.M. Edin., F.R.C.S. Edin., has been appointed Dispensary Surgeon to the Western Infirmary, Glasgow.

GRANT, ROBERT, M.D. Aberd., has been appointed Certifying Surgeon under the Factory and Workshop Act for the Cromer District of the county of Norfolk.

MORTON, REGINALD, M.D. Tor., F.R.C.S. Edin., has been appointed Medical Officer in Charge of the X Ray Department at the West London Hospital.

NICOL, J. W., M.B., C.M. Glasg., has been appointed Physician for Skin Diseases in the Western Infirmary, Glasgow.

NORMAN, VINCENT P., L.M.S.S.A. Lond., has been appointed Clinical Assistant to the Eye Department of the West London Hospital.

POIGNAND, R. N., M.B. Cantab., has been appointed Certifying Surgeon under the Factory and Workshop Act for the Littleport District of the county of Cambridge.

TOMKINSON, J. G., M.D., Ch.B. Glasg., has been appointed Physician to the Skin Dispensary of the Western Infirmary, Glasgow.

YOUNG, R. F., B.C. Cantab., has been appointed Extra Dispensary Surgeon to the Western Infirmary, Glasgow.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

AYLESBURY, ROYAL BUCKINGHAMSHIRE HOSPITAL.—House Surgeon, unmarried. Salary £100 per annum, with board, washing, and lodging.

BIRMINGHAM GENERAL DISPENSARY.—Resident Surgeon, unmarried. Salary £200 per annum.

BLACKBURN AND EAST LANCASHIRE INFIRMARY.—Senior House Surgeon, also Junior House Surgeon. Salaries £110 and £80 per annum, with board, residence, &c.

BOLINGBROKE HOSPITAL, Wandsworth Common, S.W.—Two House Surgeons, for six months. Salary at rate of £75 per annum, with board and residence.

BRIGHTON, HOVE, AND PRESTON DISPENSARY (Northern Branch).—Resident Medical Officer, unmarried. Salary £160, with rooms, &c.

BRIGHTON, SUSSEX COUNTY HOSPITAL.—Third House Surgeon, unmarried. Salary £50 per annum, with apartments, board, and laundry.

BRISTOL GENERAL HOSPITAL.—House Surgeon, Casualty House Surgeon, and Assistant House Physician. Salaries £60 per annum, with board, residence, &c.

BRISTOL ROYAL INFIRMARY.—Resident Casualty Officer for six months. Salary at rate of £50 per annum, with board, lodging, and washing.

BURY ST. EDMUNDS, WEST SUFFOLK GENERAL HOSPITAL.—House Surgeon, unmarried. Salary £100 per annum, with board and lodging.

CANTERBURY, KENT AND CANTERBURY HOSPITAL.—House Physician, unmarried. Salary £70 per annum, with board, lodging, and washing.

CARDIFF INFIRMARY (GENERAL HOSPITAL).—House Surgeon. Salary £60, with board and residence.

CHELSEA HOSPITAL FOR WOMEN, Fulham-road, S.W.—Clinical Assistant.

CITY OF LONDON HOSPITAL FOR DISEASES OF THE CHEST, Victoria Park, E.—Physician to Out-patients.

COLCHESTER, ESSEX COUNTY HOSPITAL.—House Physician, also House Surgeon. Salary in each case £80 per annum, with board, residence, and washing.

EAST LONDON HOSPITAL FOR CHILDREN AND DISPENSARY FOR WOMEN Shadwell, E.—Assistant Surgeon. Also Second Medical Officer to the Casualty Department for six months. Salary at rate of £40 per annum, with luncheon and tea.

EDINBURGH, ROYAL EDINBURGH ASYLUM.—Junior Medical Officer. Salary at rate of £125 per annum, with board, residence, and laundry.

HALIFAX UNION POOR-LAW HOSPITAL, Salterhebble.—Resident Medical Officer. Salary £130 per annum, with apartments, rations, and washing.

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton.—Resident House Physicians for six months. Salary £25.

HOSPITAL FOR SICK CHILDREN, Great Ormond-street, London, W.C.—House Surgeon, unmarried, for six months. Salary £30, with board and residence. Also Honorary Anæsthetist.

KING EDWARD VII. SANATORIUM, Midhurst, Sussex.—Junior Assistant Medical Officer. Salary £100 per annum, with board, lodging, and attendance.

LINCOLN MENTAL HOSPITAL, The Lawn, Lincoln.—Assistant Medical Officer, unmarried. Salary £150 per annum, board, &c.

LIVERPOOL DISPENSARIES.—Assistant Surgeon, unmarried. Salary £100 per annum, with board and apartments.

LIVERPOOL, STANLEY HOSPITAL.—Senior House Surgeon. Salary £100 per annum, with board, residence, and laundry.

LONDON HOSPITAL, Whitechapel, E.—Surgeon, Assistant Surgeon, Medical Officer in charge of the Radiographic Department, and two Assistant Anæsthetists.

LONDON THROAT HOSPITAL, 204, Great Portland-street, W.—Assistant Surgeon and two Assistant Anæsthetists.

MERTHYR TYDFIL WORKHOUSE.—Assistant Medical Officer. Salary £120 per annum, with apartments, rations, laundry, and attendance.

METROPOLITAN HOSPITAL, Kingsland-road, N.E.—Resident Anæsthetist. Salary at rate of £80 per annum.

MOUNT VERNON HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Hampstead and Northwood, Middlesex.—Senior and Junior Resident Medical Officers. Salary £100 and £50 per annum respectively, with board and residence.

NEWPORT AND MONMOUTHSHIRE HOSPITAL.—House Physician. Salary £60 per annum, with board, residence, and laundry.

NORWICH, NORFOLK AND NORWICH HOSPITAL.—House Physician, unmarried. Salary £80 per annum, with board, lodging, and washing.

NOTTINGHAM GENERAL DISPENSARY.—Assistant Resident Surgeon, unmarried. Salary £160, with apartments, attendance, light, and fuel.

NOTTINGHAM GENERAL HOSPITAL.—Assistant House Physician. Salary £60 per annum, with board, lodging, and washing.

NOTTINGHAM WORKHOUSE INFIRMARY.—Assistant Resident Medical Officer, unmarried. Salary £130 per annum, with apartments, board, washing, and attendance.

PADDINGTON GREEN CHILDREN'S HOSPITAL, London, W.—House Physician, also House Surgeon, both for six months. Salary in each case at rate of 50 guineas per annum, with board and residence.

PADDINGTON INFIRMARY AND WORKHOUSE.—Second Assistant and Medical Officer for six months. Salary at rate of £100 per annum, with board, lodging, and washing.

POPLAR HOSPITAL FOR ACCIDENTS, Poplar, E.—Assistant House Surgeon for six months. Salary at rate of £80 per annum, with board and residence.

POPLAR WORKHOUSE, High-street, Poplar, E.—Resident Medical Officer. Salary £300 per annum, with apartments, light, and coal.

PRESTWICH UNION INFIRMARY AND WORKHOUSE.—Assistant Medical Officer. Salary £140 per annum, with apartments, rations, &c.

PRINCE OF WALES'S GENERAL HOSPITAL, Tottenham, N.—House Surgeon, House Physician, Junior House Surgeon, and Junior House Physician. Salaries of two former £75 per annum, and of two latter £40 per annum, with residence, board, and laundry.

QUEEN'S HOSPITAL FOR CHILDREN, Hackney-road, Bethnal Green, E.—Assistant Resident Medical Officer. Salary £75 per annum, with board, residence, and washing.

ROYAL FREE HOSPITAL, Gray's Inn-road, W.C.—House Physician and House Surgeon (males). Also House Physician and House Surgeon (females), for six months. Board, lodging, and washing provided.

ROYAL HOSPITAL FOR DISEASES OF THE CHEST, City-road, London, E.C.—Assistant Physician.

ROYAL WATERLOO HOSPITAL FOR CHILDREN AND WOMEN, Waterloo Bridge-road, S.E.—Junior Resident Medical Officer. Salary at rate of £40 per annum, with board and washing.

ST. LUKE'S HOSPITAL FOR MENTAL DISEASES, Old-street, London.—Clinical Assistant, unmarried, for six months.

ST. MARK'S HOSPITAL FOR FISTULA AND OTHER DISEASES OF THE RECTUM, City-road, E.C.—Three Clinical Assistants.

ST. PANCRAS GUARDIANS OF THE POOR.—District Medical Officer for Ward No. 8. Salary £80 per annum.

SALFORD ROYAL HOSPITAL.—House Surgeon. Salary at rate of £60 per annum, with board and residence.

SHEFFIELD ROYAL INFIRMARY.—Assistant House Physician. Salary £60 per annum, with board and residence.

SWANSEA GENERAL AND EYE HOSPITAL.—House Physician. Salary £75.

WESTMINSTER GENERAL DISPENSARY.—Resident Medical Officer. Salary £120 per annum, with rooms, gas, coal, and attendance.

WOLVERHAMPTON AND STAFFORDSHIRE GENERAL HOSPITAL.—House Surgeon. Salary £80 per annum, with board, lodging, and laundry.

THE Chief Inspector of Factories, Home Office, London, S.W., gives notice of vacancies as Certifying Surgeons under the Factory and Workshop Act at Salford (East), in the county of Lancaster; at Kirkpatrick-Durham, in the county of Kirkcudbright; at Windermere, in the county of Westmorland; and at Leslie, in the county of Fife.

Births, Marriages, and Deaths.

BIRTHS.

COLLINGWOOD.—On Oct. 2nd, at Hong-Kong, the wife of Captain P. H. Collingwood, R.A.M.C., of a daughter.

HARMAN.—On Sept. 30th, at Harley-street, London, W., the wife of N. Bishop Harman, F.R.C.S., of a daughter.

MARRIAGES.

DICKSON—RHODES.—On Sept. 29th, at St. Leonard's, Bridgnorth, Louis Edington Dickson, M.D., B.S., to Margaret Helen, only daughter of the late William Rhodes, M.R.C.S., L.R.C.P., and Mrs. Rhodes of Bridgnorth.

FIELDEN—WAYCOTT.—On Oct. 2nd, at St. Mary's, Bryanston-square, W., Henry Adamson Fielden, M.D., of Shildon, Durham, to Winifred, eldest daughter of Robert Waycott, Paignton, Devon.

DEATHS.

MUSKETT.—On August 25th, 1909, at 143, Elizabeth-street, Hyde Park, Sydney, N.S.W., Philip Edward Muskett, L.R.C.P. et L.R.C.S. Edin., aged 52.

POLLOCK.—On Oct. 5th, at Park-street, Grosvenor-square, William Rivers Pollock, M.D. Cantab., F.R.C.P., aged 50 years.

SMITH.—On Oct. 1st, at Stratford-place, W., Sir Thomas Smith, Bart., K.C.V.O., F.R.C.S., Honorary Serjeant-Surgeon to H.M. the King, aged 76 years.

N.B.—A fee of 5s. is charged for the Insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

AN INTERNATIONAL COLOUR CHART.

THE Secretary of the Royal Horticultural Society has recently addressed a letter to the press calling attention to the difficulty which his society has felt for many years in describing definitely the colour of any flower "in terms which shall be distinctly and definitely intelligible in New York and Paris, Berlin and Quebec, as in London." After pointing out the difficulty which all must feel who have to represent colour in words, his letter continues:

> We determined, therefore, to endeavour to establish an international code by which anyone, anywhere, could convey to anyone else at a distance of time or place exactly and precisely the colour and shade he is speaking of. With this end in view we searched for a good colour chart, and have been successful in finding an excellent one containing 360 colours between white and black, with the name of each in French, German, English, Spanish, and Italian, together with four shades of each of the 360 colours, so that anyone wishing to describe to a friend at Calcutta the exact colour and shade of a flower or a silk or a painting need only refer to the colour chart number, quoting, if for "apricot," e.g., page 53, shade 3; or if for "rosy-pink," page 118, shade 4; and so on. The cost of production of so beautifully printed and so large a chart was, of course, very heavy, and it was issued at one guinea net, but our society, by adopting it as an international standard, and purchasing a very large number of copies from the publisher, is able to supply it to our Fellows and others at 14*s.* 6*d.*, or if by post 15*s.*

Last week we discussed the number of colour shades appreciable by the human eye and recorded Dr. F. W. Edridge-Green's opinion that when the race has become more highly "evolved" that number will be considerably increased. Be this as it may, the time has long gone past since men were content to express their sense of all the hues of nature and art under a dozen or so of names. The invention of the aniline dyes has added considerably to the shades of colour available for textural purposes, and the artist's colourman, even though he has lost the secrets which imparted an eternal youth to the pictures of Raphael's century, at least can present the modern painter with a range of pigments undreamt of by the great Italian masters. Of the new dyes fashion has been quick to take advantage, and has expended some ingenuity in finding names for the chameleon hues with which, as the seasons change, she decks her votaries. It is not to be expected that the average masculine mind will accustom itself to such titles as "nattier blue," and it would probably scorn familiarity with "crushed strawberry," "*feuille mort*" and colour terms of kindred origin, whilst the inconsequence which leads the creative milliner to label a shade of mauve with the name of a popular queen is not only absurd but aggravating. But the need of an accurate colour nomenclature is not limited to the description of frocks and flowers, and medical men must often have wished for a ready method of exactly translating into words some particular tint. Such a chart as we have mentioned might, for instance, be of the utmost service to the descriptive dermatologist, who could convey by its aid an accurate word picture of a given skin lesion to anyone possessing a copy of the chart much more readily than to another. The idea is not entirely new to medicine, as it has been adopted on a limited scale in various devices for the estimation of hæmoglobin, but such special colour charts only represent the shades of red. The chemist may well find the new chart welcome in placing on record such colour reactions as are commonly employed in many branches of his analytical work. When we consider its various utilities we feel that many branches of science owe a debt of gratitude to the Royal Horticultural Society for its energy in seeking to establish a chart of International Colour Reference, the production of which, we may add, is an extraordinary tribute to the perfection of modern printing in colour. The address of the society is Vincent-square, London.

WILLIAM HARVEY'S ASSOCIATIONS WITH BIRMINGHAM.

To the Editor of THE LANCET.

SIR,—Your readers in the Midlands, who are many, should be interested to know that there is a high probability that the discoverer of the circulation of the blood was on one occasion as near to Birmingham as Aston Hall. For all we know to the contrary, Harvey *may* have been in the town itself, but it is sufficiently interesting to be assured that as the medical attendant on King Charles I., Harvey must have stayed at Aston Hall on the occasion of the King's visit to Sir Thomas Holte of Aston Hall.

The visit of Charles to his venerable host and most loyal adherent Sir Thomas Holte was in October, 1642, when the Royal army was on the march from Shrewsbury to relieve Banbury Castle, the same month in which was fought the battle of Edgehill. The dates are as follow: Charles slept at Aston Hall on the nights of Oct. 16th and 17th, and fought the battle on Sunday, the 23rd. Now, it is absolutely certain that William Harvey was in close attendance on the King during the whole of that autumn campaign. We have Harvey's own words to that effect. He wrote: "Whilst in attendance on His Majesty the King during our late troubles and more than civil wars," &c. It is known that Harvey accompanied the King when he left London for Nottingham on August 16th, 1642, and that he was beside the King during the whole of the September, in which month he rode over from Nottingham to Derby to visit his friend Percival Willoughby, who has left a record of their conversation on "uterine honeycomb" (epithelioma). It is also certain that Harvey was present at the battle of Edgehill on Oct. 23rd. The two young Princes, afterwards Charles II. and James II., aged 12 and 10 years respectively, were that day left in his charge, and Aubrey distinctly tells us that as they sat in a ditch on the edge of the hill a "bullet from a great gun" made them "move their station." Harvey is known to have attended to the wounds of the gallant Sir Jervais Scrope. The King was in the battle and Harvey was by his side. Banbury surrendered on the 27th of the month, and on the 29th Charles entered Oxford in triumph. Harvey entered it along with him. Aubrey first met Harvey in Oxford. Harvey remained in Oxford for the best part of the next two years studying problems in development.

Seeing, then, that Harvey was in such close and constant attendance on the King from the middle of August to the end of October, 1642, there is no reason at all for refusing to admit that Harvey was with his Royal Master for the two days and nights which Charles spent at Aston Hall. It is extremely unlikely that so distinguished and indispensable a member of the King's household—one enjoying so intimately as Harvey did the Royal friendship—would be asked to sleep elsewhere than in the house of the King's host. Aston Hall had plenty of accommodation for such a party as the King's retinue in time of war. If any member of the household was asked to "sleep outside" it would not be the physician-in-ordinary to the King and his personal friend, William Harvey. It may therefore be safely assumed that the immortal discoverer of the circulation of the blood passed two nights in that fine old English mansion so close to us, Aston Hall, then quite a new house, for it had been completed only in 1635. Almost all other houses that he visited, not being new at the time, have perished. The enlightened corporation of the city of Birmingham have preserved Aston Hall, one of "the stately homes of England," from vulgar disfigurement and decay, but they did not probably know that whilst doing this they were preserving, as nearly as possible in its original condition, a building which for at least 48 hours sheltered one of England's greatest sons and the world's greatest discoverers. The very staircases exist which Harvey must have climbed, the same ceilings are there which Harvey must have admired. All such tangible and visible links with the past are interesting, but any existing links with Harvey must be precious to all interested in the history of English medicine.

I am, Sir, yours faithfully,

University of Birmingham, Oct. 2nd, 1909. D. FRASER HARRIS, M.D. Glasg.

DEATH FOLLOWING THE USE OF A "CORN-CURE."

AN inquest was held at Shoreham (Sussex) on Oct. 2nd on the body of a retired master mariner, aged 59 years. Of late years he had not enjoyed the best of health and latterly he had been troubled with a soft corn between the middle and fourth toe on the left foot. Without seeking proper advice deceased used a "corn-cure" preparation. The trouble increased until medical advice was obtained. Dr. C. R. Wood, who was called in, found a large irritable and inflamed ulcer, while the skin round the base looked as if it had been burnt by some corrosive liquid. The ulcer penetrated into the joint of the toe and inflammation spread to the foot. The toe was amputated, but after the operation the wound showed little tendency to heal, the tendons of the foot became gangrenous, and death supervened. Dr. Wood told the coroner that he had examined the "corn-cure" which the deceased had used, and said it was one of numerous preparations containing salicylic acid which was strongly corrosive, and he thought elderly persons should be warned of its use. The coroner (Mr. F. W. Butler) said it should be brought home to those who had the selling and preparation of these applications that it was most desirable to caution people regarding them. The jury returned a verdict that death was due to acute septicæmia following the application of a corrosive liquid to a soft corn on the foot.

THE WRITINGS OF THE LATE DR. G. M. BEARD.

IF any readers of THE LANCET have in their possession, or know of the whereabouts of, any books, pamphlets, manuscripts, or letters written by the late Dr. George Miller Beard, his daughter Miss Grace Alden Beard, of 675, Flabbush Avenue, Brooklyn, New York, would be glad to receive a communication from them. The object of this request is to obtain all possible data preliminary to a republication of some of Dr. Beard's neurological and psychological writings, and to a presentation of certain manuscripts never before printed.

A LONG-LIVED COUNTRYSIDE.

A MEDICAL correspondent has sent us an interesting extract from the *Chard and Ilminster News*, for the accuracy of which he is able to vouch as he is the professional adviser of all the persons mentioned with the exception of Sarah Morris. He had attended Jacob Trott for some years before his death. The extract is as follows: "Chard has recently lost its oldest resident, Jacob Trott, of Clarke's Row, who was in his 97th year, and could thus remember the battle of Waterloo.

Trott, however, could not claim longest residence in the town, as he was born at Broadway, and had only been in Chard 24 years. He was blind for many years previous to his death. His two sisters, who predeceased him, attained the ages of 84 and 80, while a daughter of the old man is in her 73rd year. Trott's remarkable age led us to inquire as to whether there were any other nonogenarians living in the district. Our quest was not in vain, for we find that at Tatworth there is a Sarah Morris, aged 93; in High-street, Chard, Eliza Tucker, 90; at Winsham, Saml. Spurdle, 91; at Purtington, Uriah Samways, 90, who still continues his occupation as a shepherd; and at Bath-lane, Chard, Mary Batten, 90, who is still quite proficient with her needle. The combined ages of these five persons thus aggregate 454 years, which, if not constituting a record, must run very close."

A CUSTOMS PROBLEM.

OUR Australian correspondent writes that the Victorian Customs officials were recently puzzled under what heading to class an importation of sun-dried lizards which a wealthy Chinese citizen had made for the purpose of using as a drug. The lizards are ground into powder and believed to possess much medicinal virtue. Eventually it was decided that the lizards should be classed "unenumerated" and admitted duty free. The incident calls to mind *Mr. Punch's* joke of the maiden lady, travelling with a domestic menagerie, and being told by the porter, from whom she has inquired as to the tickets necessary for her pets, that the tortoise was an insect.

A SHEET ALMANAC FOR THE UNIVERSITY OF LONDON.

A SHEET almanac has been instituted for the University of London, and it is proposed to continue the publication annually. The upper half of the almanac consists of a beautiful drawing of the University buildings, executed by Mr. W. Monk, the cost of the drawing having been defrayed by the Chancellor. A certain number of prints of the drawing have been made upon Japanese paper and will be sold apart from the almanac. The price of the almanac will be 2*s.* 6*d.*, and the special prints will be sold at 5*s.* Application should be made to the University or to the following booksellers—Messrs. A. and F. Denny, 147, Strand, W.C., and Mr. H. K. Lewis, 136, Gower-street, W.C.

W. W. S. (*Munich*).—Delusions associated with the human excretions are by no means confined to malarial insanities. Such cases as our correspondent describes are familiar to any person acquainted with mental disease. They are perhaps explained to some extent by the loss of the higher cerebral powers of inhibition, which is characteristic of most insanities.

COMMUNICATIONS not noticed in our present issue will receive attention in our next.

Medical Diary for the ensuing Week.

ROYAL SOCIETY OF MEDICINE, 20, Hanover-square, W.

TUESDAY.

SURGICAL SECTION (Hon. Secretaries—Walter G. Spencer, Jonathan Hutchinson): at 5.30 P.M.

Paper:

Mr. Rickman J. Godlee: Prognosis in some Inflammatory Diseases of the Lungs and Pleura commonly treated Surgically.

THURSDAY.

OBSTETRICAL AND GYNÆCOLOGICAL SECTION (Hon. Secretaries—William J. Gow, W. Rivers Pollock): at 7.45 P.M.

Presidential Address:

Dr. H. Macnaughton-Jones.

Dr. J. M. Munro Kerr: A Case of Placenta Prævia in which it was deemed advisable to perform Cæsarean Section.

Dr. J. Curtis Webb: Points on the Use of, and Indications for, Electro-therapy in some Gynæcological Affections.

FRIDAY.

ELECTRO-THERAPEUTICAL SECTION (Hon. Secretaries—Reginald Morton, G. Harrison Orton): at 8.30 P.M.

Presidential Address:

Dr. Samuel Sloan: Electro-therapeutics in Gynæcology.

N.B.—Fellows of the Society are entitled to attend and to speak at all Meetings.

MEDICAL SOCIETY OF LONDON, 11, Chandos-street, Cavendish-square, W.

MONDAY.—8 P.M., General Meeting. 8.30 P.M., In-coming President's Address.—Mr. H. Lett: Two Cases of Perforation of the Small Intestine.

UNITED SERVICES MEDICAL SOCIETY, Royal Army Medical College, Millbank, S.W.

WEDNESDAY.—8.30 P.M., Lieut.-Colonel P. J. Freyer, I.M.S. (R.): Total Enucleation of the Prostate; Practical Observations on the Operation.

SOCIETY OF TROPICAL MEDICINE AND HYGIENE, 11, Chandos-street, Cavendish-square, W.

FRIDAY.—8.30 P.M., Discussion on Recent Advances in our Knowledge of Sleeping Sickness.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

ROYAL COLLEGE OF SURGEONS OF ENGLAND, Lincoln's Inn Fields, W.C.

FRIDAY.—5 P.M., Prof. Keith: Specimens illustrating Various Forms of Constrictions and Occlusions Found in the Course of the Alimentary Canal. (Museum Demonstration.)

MEDICAL GRADUATES' COLLEGE AND POLYCLINIC, 22, Chenies-street, W.C.

MONDAY.—4 P.M., Dr. S. E. Dore: Clinique (Skin). 5.15 P.M., Lecture:—Dr. H. Campbell: Treatment of Neuralgia.

TUESDAY.—4 P.M., Dr. E. Wynter: Clinique (Medical). 5.15 P.M., Lecture:—Dr. E. C. Hort: Rational Immunisation from a Practical Standpoint.

WEDNESDAY.—4 P.M., Mr. T. Walker: Clinique (Surgical). 5.15 P.M., Lecture:—Dr. G. H. Savage: Moral Insanity.

THURSDAY.—4 P.M., Sir Jonathan Hutchinson: Clinique (Surgical). 5.15 P.M., Lecture:—Mr. L. Mummery: The Diagnosis and Treatment of the More Serious Forms of Colitis.

FRIDAY.—4 P.M., Mr. W. Stuart-Low: Clinique (Ear, Nose, and Throat).

POST-GRADUATE COLLEGE, West London Hospital, Hammersmith-road, W.

MONDAY.—10 A.M., Lecture:—Surgical Registrar: Demonstration of Cases in Wards. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Dunn: Diseases of the Eyes. 2.30 P.M., Operations. 5 P.M., Opening Lecture:—Prof. T. Schott: A Renewed Research on the subject of Acute Overstraining of the Heart.

TUESDAY.—10 A.M., Dr. Moullin: Gynæcological Operations. 12.15 P.M., Lecture:—Dr. Pritchard: Practical Medicine. 2 P.M., Medical and Surgical Clinics. X Rays. Dr. Davis: Diseases of the Throat, Nose, and Ear. 2.30 P.M., Operations. Dr. Abraham: Diseases of the Skin. 5 P.M., Lecture:—Dr. R. Jones: Symptomatology of Mental Diseases.

WEDNESDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Davis: Diseases of the Throat, Nose, and Ear. 12.15 P.M., Lecture:—Dr. G. Stewart: Practical Medicine. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. B. Harman: Diseases of the Eyes. 2.30 P.M., Operations. Dr. D. Robinson: Diseases of Women. 5 P.M., Lecture:—Dr. R. Morton: X Ray Examination of the Thorax.

THURSDAY.—10 A.M., Lecture:—Surgical Registrar: Demonstration of Cases in Wards. 12 noon, Pathological Demonstration:—Dr. Bernstein. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Dunn: Diseases of the Eyes. 2.30 P.M., Operations. 5 P.M., Lecture:—Mr. Ll. Williams: Dental and Oral Conditions Influencing the General Health.

FRIDAY.—10 A.M., Dr. Moullin: Gynæcological Operations. 2 P.M., Medical and Surgical Clinics. X Rays. Dr. Davis: Diseases of the Throat, Nose, and Ear. 2.30 P.M., Operations. Dr. Abraham: Diseases of the Skin. 5 P.M., Lecture:—Mr. Etherington-Smith: Clinical.

SATURDAY.—10 A.M., Dr. Saunders: Diseases of Children. Mr. B. Harman: Diseases of the Eyes. Dr. Davis: Diseases of the Throat, Nose, and Ear. 12.15 P.M., Lecture:—Dr. G. Stewart: Practical Medicine. 2 P.M., Medical and Surgical Clinics. X Rays. 2.30 P.M., Operations. Dr. D. Robinson: Diseases of Women.

LONDON SCHOOL OF CLINICAL MEDICINE, Dreadnought Hospital, Greenwich.

MONDAY.—2 P.M., Operations. 2.15 P.M., Sir Dyce Duckworth: Medicine. 3.15 P.M., Mr. Turner: Surgery. 4 P.M., Mr. R. Lake: Ear and Throat. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 12 noon, Ear and Throat. 2.15 P.M., Special Lecture:—Sir Dyce Duckworth: Gouty Phlebitis.

TUESDAY.—2 P.M., Operations. 2.15 P.M., Dr. R. Wells: Medicine. 3.15 P.M., Mr. Carless: Surgery. 4 P.M., Sir M. Morris: Diseases of the Skin. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 12 noon, Skin.

WEDNESDAY.—2 P.M., Operations. 2.15 P.M., Dr. F. Taylor: Medicine. 3.30 P.M., Mr. Cargill: Ophthalmology. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 11 A.M., Eye.

THURSDAY.—2 P.M., Operations. 2.15 P.M., Dr. G. Rankin: Medicine. 3.15 P.M., Sir W. Bennett: Surgery. 4 P.M., Dr. Sale-Barker: Radiography. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 12 noon, Ear and Throat. 3.15 P.M., Special Lecture:—Sir William Bennett: Cramp.

FRIDAY.—2 P.M., Operations. 2.15 P.M., Dr. R. Bradford: Medicine. 3.15 P.M., Mr. McGavin: Surgery. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 12 noon, Skin.

SATURDAY.—2 P.M., Operations. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 11 A.M., Eye.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N.

MONDAY.—Clinics:—10 A.M., Surgical Out-patient (Mr. H. Evans), 2.30 P.M., Medical Out-patient (Dr. T. R. Whipham); Nose, Throat, and Ear (Mr. H. W. Carson). 4.30 P.M., Medical In-patient (Dr. A. J. Whiting).

TUESDAY.—Clinic: 10 A.M., Medical Out-patient (Dr. A. G. Auld). 2.30 P.M., Operations. Clinics:—Surgical (Mr. W. Edmunds); Gynæcological (Dr. A. E. Giles). 4.30 P.M., Lecture:—Dr. R. M. Leslie: The Incidence of Age in Disease.

WEDNESDAY.—Clinics:—2.30 P.M., Medical Out-patient (Dr. T. R. Whipham); Skin (Dr. G. N. Meachen); Eye (Mr. R. P. Brooks). 3 P.M., X Rays (Dr. H. Pirie).

THURSDAY.—2.30 P.M., Gynæcological Operations (Dr. A. E. Giles). Clinics:—Medical Out-patient (Dr. A. J. Whiting); Surgical (Mr. Carson). 3 P.M., Medical In-patient (Dr. G. P. Chappel). 4.30 P.M., Lecture:—Mr. W. Edmunds: Surgery of the Blood Vessels.

FRIDAY.—10 A.M., Clinic:—Surgical Out-patient (Mr. H. Evans). 2.30 P.M., Operations. Clinics:—Medical Out-patient (Dr. A. G. Auld); Eye (Mr. R. P. Brooks). 3 P.M., Medical In-patient (Dr. R. M. Leslie).

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC, Queen-square, Bloomsbury, W.C.

TUESDAY.—3.30 P.M., Clinical Lecture: Dr. G. Holmes: Hereditary Ataxia.

FRIDAY.—3.30 P.M., Clinical Lecture;—Disseminated Sclerosis.

WEST-END HOSPITAL FOR DISEASES OF THE NERVOUS SYSTEM, 73, Welbeck-street, W.

MONDAY.—3 P.M., Clinical Demonstration: Dr. H. Campbell.
TUESDAY.—5 P.M., Clinical Demonstration:—Dr. J. Mackenzie.
WEDNESDAY.—3 P.M., Clinical Demonstration:—Dr. F. Palmer.
THURSDAY.—3 P.M., Clinical Demonstration:—Dr. T. D. Savill.
FRIDAY.—2 P.M., Clinical Demonstration:—Dr. P. Stewart. 5.30 P.M., Clinical Demonstration: Dr. E. Macnamara.

LONDON INSTITUTION, Finsbury-circus, E.C.

8.30 P.M., Dr. S. Martin: Certain Infective Processes in the Intestine; their Results and Treatment.

OPERATIONS.

METROPOLITAN HOSPITALS.

MONDAY (11th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), St. George's (2 P.M.), St. Mary's (2.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), Chelsea (2 P.M.), Samaritan (Gynæcological, by Physicians, 2 P.M.), Soho-square (2 P.M.), City Orthopædic (4 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Royal Free (2 P.M.), Guy's (1.30 P.M.), Children, Gt. Ormond-street (9 A.M.), St. Mark's (2.30 P.M.).

TUESDAY (12th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), West London (2.30 P.M.), University College 2 P.M.), St. George's (1 P.M.), St. Mary's (1 P.M.), St. Mark's (2.30 P.M.), Cancer (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Soho-square (2 P.M.), Chelsea (2 P.M.), Central London Throat and Ear (2 P.M.), Children, Gt. Ormond-street (9 A.M. and 2 P.M., Ophthalmic, 2 P.M.), Tottenham (2.30 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

WEDNESDAY (13th).—St. Bartholomew's (1.30 P.M.), University College (2 P.M.), Royal Free (2 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), King's College (2 P.M.), St. George's (Ophthalmic, 1 P.M.), St. Mary's (2 P.M.), National Orthopædic (10 A.M.), St. Peter's (2 P.M.), Samaritan 9.30 A.M. and 2.30 P.M.), Gt. Northern Central (2.30 P.M.), Westminster (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Cancer (2 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Ear (2 P.M.), Royal Orthopædic (3 P.M.), Children, Gt. Ormond-street (9 A.M. and 9.30 A.M., Dental, 2 P.M.), Tottenham (Ophthalmic, 2.30 P.M.), West London (2.30 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

THURSDAY (14th).—St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), University College (2 P.M.), Charing-cross (3 P.M.), St. George's (1 P.M.), London (2 P.M.), King's College (2 P.M.), Middlesex (1.30 P.M.), St. Mary's (2.30 P.M.), Soho-square (2 P.M.), North-West London (2 P.M.), Gt. Northern Central (Gynæcological, 2.30 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Orthopædic (9 A.M.), Royal Ear (2 P.M.), Children, Gt. Ormond-street (9 A.M. and 2 P.M.), Tottenham (Gynæcological, 2.30 P.M.), West London (2.30 P.M.), Central London Throat and Ear (Minor, (9 A.M., Major, 2 P.M.).

FRIDAY (15th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), King's College (2 P.M.), St. Mary's (2 P.M.), Ophthalmic (10 A.M.), Cancer (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), City Orthopædic (2.30 P.M.), Soho-square (2 P.M.) Children, Gt. Ormond-street (9 A.M., Aural, 2 P.M.), Tottenham (2.30 P.M.), St. Peter's (2 P.M.), Central London Throat and Ear (Minor 9 A.M., Major, 2 P.M.).

SATURDAY (16th).—Royal Free (9 A.M.), London (2 P.M.), Middlesex (1.30 P.M.), St. Thomas's (2 P.M.), University College (9.15 A.M.), Charing Cross (2 P.M.), St. George's (1 P.M.), St. Mary's (10 A.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Children, Gt. Ormond-street (9 A.M. and 9.30 A.M.), West London (2.30 P.M.).

At the Royal Eye Hospital (2 P.M.), the Royal London Ophthalmic (10 A.M.), the Royal Westminster Ophthalmic (1.30 P.M.), and the Central London Ophthalmic Hospitals operations are performed daily.

EDITORIAL NOTICES.

IT is most important that communications relating to the Editorial business of THE LANCET should be addressed *exclusively* "TO THE EDITOR," and not in any case to any gentleman who may be supposed to be connected with the Editorial staff. It is urgently necessary that attention should be given to this notice.

It is especially requested that early intelligence of local events having a medical interest, or which it is desirable to bring under the notice of the profession, may be sent direct to this office.

Lectures, original articles, and reports should be written on one side of the paper only, AND WHEN ACCOMPANIED BY BLOCKS IT IS REQUESTED THAT THE NAME OF THE AUTHOR, AND IF POSSIBLE OF THE ARTICLE, SHOULD BE WRITTEN ON THE BLOCKS TO FACILITATE IDENTIFICATION.

Letters, whether intended for insertion or for private information, must be authenticated by the names and addresses of their writers—not necessarily for publication.

We cannot prescribe or recommend practitioners.

Local papers containing reports or news paragraphs should be marked and addressed "To the Sub-Editor."

Letters relating to the publication, sale and advertising departments of THE LANCET *should be addressed "To the Manager."*

We cannot undertake to return MSS. not used.

MANAGER'S NOTICES.

TO SUBSCRIBERS.

WILL Subscribers please note that only those subscriptions which are sent direct to the Proprietors of THE LANCET at their Offices, 423, Strand, London, W.C., are dealt with by them? Subscriptions paid to London or to local newsagents (with none of whom have the Proprietors any connexion whatever) do not reach THE LANCET Offices, and consequently inquiries concerning missing copies, &c., should be sent to the Agent to whom the subscription is paid, and *not* to THE LANCET Offices.

Subscribers, by sending their subscriptions direct to THE LANCET Offices, will insure regularity in the despatch of their Journals and an earlier delivery than the majority of Agents are able to effect.

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(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, Oct. 7th, 1909.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Rainfall.	Solar Radio in Vacuo.	Maximum Temp. Shade.	Min. Temp.	Wet Bulb.	Dry Bulb.	Remarks.
Oct. 1	29·83	S.	0·06	82	64	52	57	58	Overcast
,, 2	29.78	S.W.	...	77	63	55	55	55	Hazy
,, 3	29.84	S.	0·05	74	66	55	59	60	Raining
,, 4	29.75	S.W.	0·07	101	67	60	59	62	Cloudy
,, 5	29·45	S.W.	0 07	100	66	59	57	60	Cloudy
,, 6	29·84	S.W.	0·13	100	62	46	46	48	Fine
,, 7	29 93	S.	...	98	60	48	52	55	Fine

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